T.C.

ISTANBUL AYDIN UNIVERSITY

INSTITUTE OF SOCIAL SCIENCES

CUSTOMER PREFERENCES ON MORTGAGE FINANCE IN TURKEY

A STUDY WITH CONJOINT ANALYSIS

MASTER THESIS

Muhammad Haseeb KHAN

Department of Business

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Thesis Supervisor: Asst. Prof. Dr Nurgün KOMŞUOĞLU YILMAZ

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İSTANBUL AYDIN ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜ

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Not: Öğrencinin Tez savunmasında **Başarılı** olması halinde bu form **imzalanacaktır**. Aksi halde geçersizdir.

Dedication,

To my Parents
The reason of what I become today.
Thanks for your support and continuous care.

FOREWORD

I would like to acknowledge the help of my thesis supervisor, Dr.Nurgün KOMŞUOĞLU YILMAZ in every step of thesis research. In addition my warm thanks to Dr. Ilkay KARADUMAN for his supports in research period. I'm thankful to all teachers and friends whose names I did not mention here.

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December 2017 **Muhammad Haseeb KHAN**

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ABBREVIATION

FRM.	Fixed rate mortgage
ARM.	Adjustable rate mortgage
MBS.	Mortgage backed security
FHA.	Federal housing authority
FNMA.	Federal national mortgage association
GNMA.	Govt. national mortgage association
TCA.	Traditional conjoint analysis
ACA.	Adoptive conjoint analysis
CBCA.	Choice based conjoint analysis

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TÜRKİYE'DE KONUT FİNANSMANINA İLİŞKİN MÜŞTERİ TERCİHLERİ: KONJOINT ANALİZ İLE BİR ARAŞTIRMA

ÖZET

Her ülkeye etkin bir konut finansmanı sisteminin önemi, bireylerin hem konut ihtiyaçları hem de finans, inşaat ve bu pazarlarla ilgili sektörlerin geliştirilmesindeki güçlendirilmesinin taleplerini karşılama açısından önemi nedeniyle ihmal edilemez. Ülkelerde makroekonomik istikrarın sağlanamamasının başlıca nedenleri arasında, konut finansmanı sektöründe önemli bir gelişme kaydedilmiştir. En önemli gelişmelerden biri de Meclis tarafından onaylanan yeni Mortgage Yasası ile ipotek sisteminin geliştirilmesidir. Bu tezin amacı, Türkiye'de konut ipoteği sistemini analiz etmek ve konut ipoteği almaya karar verirken tüketicilerin tercih ve tercihlerini etkileyen faktörleri vurgulamaktır.

Araştırma, Türkiye'de ipotek sistemine ilişkin tüketicilerin tercihlerinin derinlemesine bir analizini yapmaktadır. Veriler, birincil kaynak kullanılarak toplanmıştır. Katılımcılardan, ipotek piyasalarında önceden belirlenmiş seçeneklerin bir kombinasyonunu içeren 16 karta dayalı tercihlerin sıralanması istenmiştir. Kartlar Excel yazılımındaki Microsoft Engineering aracını kullanarak oluşturularak toplanan veriler tüketicilerin tercihleri hakkında ayrıntılı bilgi veren birleşik analiz gerçekleştirmek için kullanılmıştır. Dolayısıyla, bu araştırma, Türkiye'de konut finans piyasasındaki oyunculara, Türkiye'de ikamet etmeleri nedeniyle tüketicilerin tercihlerini ne almaya istekli olduklarını bilmek için önem taşımaktadır.

Anahtar kelimeler. *İpotek, Konut finansmanı, birleşik analiz*

CUSTOMER PREFERENCES ON MORTGAGE FINANCE IN TURKEY: A STUDY WITH CONJOINT ANALYSIS

ABSTRACT

The importance of an efficient housing finance system for every country cannot be neglected as it has its significance for meeting the demands of both the housing needs of the individuals and also the reinforcement in developing the finance, construction and the sectors related to these markets. The major reasons for being the unavailability of sources are macroeconomical and political stability in these countries, there has been a significant development in the housing finance sector of Turkey. One of the major developments is the mortgage system development along with the new Mortgage Law approved by the Parliament. The purpose of this thesis is to analyze the mortgage system in Turkey and also to highlight the factors that influence the choices and preferences of the consumers while they decide to take mortgage housing finance.

The research provides an in-depth analysis of the preferences of the consumers with regards to the mortgage system in Turkey. The data was collected through primary source where the respondents were asked to provide their response based on 16 cards that contain a combination of available options in the mortgage markets for the consumer to choose from. The respondents were asked to rank each card according to their preferences. The cards were formed using the Microsoft Engineering tool on the excel software. The data collected was then used to perform conjoint analysis that provided an in depth information about the preferences of the consumers. Therefore, this research has significant importance to provide the players of the housing finance market of Turkey to know what are the preferences of the consumers are willing to take loans for owing their residency in the Turkey.

Keywords. *Mortgage, Housing finance, conjoint analysis*

1. INTRODUCTION

The housing finance is a very broad topic whose concepts may vary based on different continents and regions. The housing finance system of any country can bring together a multi-sector and a complex issue that can be driven by the ever-changing features of the local community that may include the legal environment of the country, the culture of people residing in the country, the economic makeup, environmental regulatory system or the country's political system. (Loic&Lea, 2009)

The entire concept of house finance and housing finance system has been observed to evolve over the time. In mid 80's the concept was rather regarding the residential mortgage finance system. As discussed by Boleat, Mark (1985) that the sole purpose and objective of housing finance system is providing the home buyers with the finance required for purchasing their homes. The objective of housing finance is however simple but the ways in which it can be achieved is very limited. In the recent years, there has been an introduction of a number of complex and difficult housing finance systems in countries but the essential feature of the housing finance system has been unchanged that is the ability of financial institutes to provide their clients with an opportunity to purchase their own residential home.

The house finance system is, however, in recent years, not limited to the residential mortgage finance but also includes the other forms of mortgage available for the consumers that may include developer's finance, the finance for rental purpose, or microfinance that is applied for the housing purpose. (Loic& Lea, 2009)

1.1 Basic Concept of Mortgage loans

With accordance to the Anglo-American property law, the term mortgage is used when the owners pledges their interest, having the right of the property, as security or in relation to the loan applied for. The main purpose of the mortgage is to acquire money or loan by securing it with the owner's property. The mortgage is the primary lending mechanism that is being used in a number of countries in order to finance the

ownership of residential along with the commercial property in the country. However, there might be the difference in the terminologies and the terms that are being used in various countries, along with the different mortgage options available to the consumers in the market to acquire from the financial institutes. The government, in most of the countries, regulates the mortgage system directly or indirectly. Other than this, the system of mortgage in any country can be based on the historical, regional or even derived from the specific characteristics associated with the legal finance system in the country. (Cobandag, 2010)

1.2 Mortgage System in Turkey

The mortgage system in Turkey was unable to make its grounds in the past as a result of unpredictable and substantial inflation rates, the requirements for the large down payments, ambiguities in the country's economy and the very high rate of interest. The problems are also associated with the shortage of finance with the banks in Turkey along with the lack and shortage of land located in prime locations and the nonavailability of the standardization in the appraisals and the ownership. (Demirhan&Lale, 2006). The mortgage system problems in Turkey is not limited to only these but also include the lengthy procedures of the bureaucracy, the Turkish Market's dysfunctional nature and one of the most significant issue is the lack of proper infrastructure for legal proceedings.

1.3 History of Mortgage System in Turkey

During the time period, 1960s to the 1990s, major support of the housing finance system was three organizations in almost all the countries of the world. These three institutes include the government institutions, the security institutions and the commercial banks of the respective country. The housing finance market in Turkey was of monopolistic nature where there were only a few entities who dominated the housing finance sector. It was in the 2000s that the mortgage market of Turkey gained growth that too very significantly. This was the result of the changes which were compulsory in the policies regarding the investments of the country's commercial banks.

The consumer credit in Turkey saw a substantial growth in the year 2003, as a result of the gradual falls with regards to the interest's rates in the country. This not only resulted in the increase in consumer credit but also there were extensions provided to the term of the loan. It was since then that the conventional mortgage system has evolved and existed in the Turkish housing market. (Tsatsaronis& Zhu, 2004)

The house buyers in the housing finance system of Turkey are bearing the burden of high costs that are a result of the banks that bear the burden along with the risks associated with the nonpayment of assigned credits along with the ban that has been imposed on the variable interest rate application and the cost of operations.

Under the Turkish Civil Code, there are two main types of mortgage options available to the consumers in the Turkish house financing market. These two include: (Kenstaneci, 2015).

1. Principal Amount Mortgage

2. Limit Mortgage

The mortgage system in Turkey is quite complex when we compare it with the rest of the world. It is because there have been many different variables which include the interest rate, the borrowed amount by the consumer, the price of the property that the consumer desires to purchase, issues pertaining to the documentation and permissions. The whole system of mortgage is comparatively new, where the average rate of interest being charged by various banks follows index rate. That is kept at this level in order to encourage and support foreigner investors to invest in the housing market. The entire process of acquiring mortgage loan has been made very easy for the consumers with time. The Turkish banks are offering mortgage amount up to 70%. The major banks in Turkey that offer the mortgage loans include the Garanti Bank, Finansbank, DenizBank, HSBC Bank, ING Bank, Alternative Bank, Sekerbank, IsBank (Turkey Is Banks), and the ZiraatBankasi. (Gokce, 2014)

The mortgages in the Turkish housing finance system are granted to the buildings along with a deed. It is difficult for the consumer to secure the mortgage with respect to a non built property. The consumers are required to fill in their applications forms to start the process of the mortgage with the bank of their choice. The banks charge different fees for the whole processing of the loan.

The loans are even granted to foreigners and that is why, the banks offer loan amount in terms of dollar, Turkish Liras, British pound and Euros. The types of interests in the Turkish market include the fixed and early repayment. People belonging to age group 25 to 70 are all eligible for filing an application. (Pair-Gallop, 1991)

Although new, the mortgage system in the Turkish house financing market is strongly and rapidly making its grounds in the Turkish markets. Both the foreigners and the local actors of the capital market are of the opinion that in order to make it stronger there is a need to develop three favorable conditions. These include the establishment of a stronger legal system, the portfolio of the existing mortgage loan on the Turkish banking system and also a real estate sector that have a promising future for the consumers.

1.4 Research Aim and Objective

The main aim and objective of this research are to highlight the issues that are related to the mortgage system of the housing finance avenues that are available to the consumers in the Turkish housing market.

The research aims to identify the application of the mortgage and also the influence it has on the housing finance sources that are available in the Turkish markets. The research will also highlight the issues and problems that are faced by the consumers in the housing finance activities in the Turkish housing markets. The focus of the research will be mainly on the market of the largest city of Turkey, Istanbul.

The research seeks to summarize the main concepts regarding the mortgage system and focus on the review of the mortgage system that is being followed in the developing and developed countries of the world. This will then be compared to the system of housing finance in Turkish housing markets. The research will also focus on the mortgage development in some of the developed foreign countries and these will be compared with the mortgage development in the Turkish market. The research will also focus on the percentage of mortgage rates that are being used in the Turkey as compared to the other foreign countries. The research will also focus on the economists and other effects that re-associated with the mortgage market in Turkey.

1.5 Significance and purpose of the Research

The significance of this research is due to the fact that Turkey is one of the rapidly growing countries of the world with increasing population. Although the family size in Turkey is small the majority of the population is young people who have high demands for housing properties in the country. Not only the local people of Turkey, but the refugees that are coming to Turkey from the countries which are being affected also creates the demand for residential properties in the Turkish housing market.

These factors are creating a high demand in the recent years for people to own their residential property, but not everyone is able to afford the cost of housing property in the country. Thus creating a high demand and need for the housing finance and loans among the people of Turkey. The rise in the prices of the residential property is also becoming one of the major reasons why the demand for these housing loans has increased in the country.

The main purpose of this research is to focus on the sources and types of housing loans that are available for the consumers in the Turkish house financing market and how the individual consumers prefer to adapt those loans in order to gain housing properties for themselves. The research will focus on the mortgage systems, the housing systems and the problems that are associated with the housing finance system in the Turkish housing market. There has been a significant development in the real estate sector of the Turkish markets. The research will also focus on the housing needs of the individuals in the Turkish Markets based on the increased number of house seekers who looks for funds for purchasing houses for themselves.

The significance of this research is also due to the fact that the mortgage system is comparatively new in Turkey and there is still lack of information and any formal empirical analysis related to the mortgage system in the Turkish housing market. This is also mainly because of the fact that there is lack of available data regarding this system in the Turkish Market. The research is of different nature as the main focus will be the analysis of the effect of inflation, the nominal rate of interest and the total number of loans that are given to the consumers on the preference of the house financing consumers in the Turkey.

2. LITERATURE REVIEW: MORTGAGE SYSTEMS IN GERMANY, TURKEY, AND US

2.1 Mortgage Systems In Developed and Developing Countries

In the view of King (2009), there are some key aspects which different the mortgage systems of different countries. Those key aspects vary from characteristics of the mortgage market to the nature of loans and terms of financing prevailing in the country. The nature of mortgage financing in a country is highly dependent on the development stage of a country. Generally, the conditions of financing are more stringent in the developing countries as compared to the developing counterparts. As defined by Greenlaw, Hatzius, Kashyap, and Shin (2008), the mortgage market refers to a credit agreement where the creditor takes over the possession of the real property being mortgaged to obtain the loan in consideration of the loan being granted. Since the property being purchased is not under the use of debtor, therefore, the investment in property is often termed as dead investment from their viewpoint. The mortgage system was pioneered by England to accommodate the housing finance and other long-term loans. The system has emerged with respect to changing needs of the public and passage of time.

For the purpose of this research, the analysis of mortgage systems is performed in the case of US and Germany as developed countries and Turkey being the developing one).

2.1.1 Mortgage Systems in the USA

According to Callis & Kresin (2011), the United States has a typically complex mortgage market including the housing mortgage system. It has been found that both primary and secondary mortgage markets of US are very complex as compared to rest of the world. In addition, the mortgage industry of USA is also classified as largest in the entire globe. According to a research, in the first quarter of 2016, the

mortgage loan was more than six times greater than a student loan and more than 11 times greater than credit card loans in the USA. As per the estimate, the USA mortgage rate in 2015 was 3.5% and the total residential mortgage-backed security issuance was $ 923.5 billion (Facts, 2017).

It is noteworthy to mention that the mortgage system of US started in the shape of housing finance. The US housing financing started back in the 19th century mainly based on informal channels and it has evolved consistently with respect to time. The major developments to formalize the mortgage system housing financing started in early 20th century with the establishment of Federal Administration Bank and The Federal Home Loan Bank. After the establishment of these institutes, the process of housing finance was expedited by the government after the great depression (Colton, 2002). As prescribed by Coles and Hardt (2000), each country despite the level of development has their own housing finance system but it follows the fundamentals of US housing finance. It suggests the validity and reliability of the basic model of housing finance in the UK.

In the USA, the mortgage system is in a way that when a mortgage agreement is initiated, the ownership of collateral security is transferred to the lender on a conditional basis, which is transferred back to the borrower once he repays the entire borrowed mortgage amount. During this period, the lender does not have a right to sell or use the collateral property unless the borrower defaults on payment. The creditor executes a foreclosure process for collateral security if the borrower defaults, which are that the lender files a public default, notice. The collateral security can also be sold by the lender in the auction if this is specifically mentioned in the mortgage agreement (Coles & Hardt, 2000; Markus, Steinfield and Wigand, 2003).

Another type of mortgage lending in the USA is mortgage-backed securities which are the most common way of lending for securitization, in which the lenders create a pool of mortgage loans. The mortgage loan certificates are then sold in the secondary market as securities. The investors who buy the mortgage loan certificates from the pool acquire the share when the amount of mortgage loan is returned. In this way, the lenders increase their cash flow and use it to borrow to other mortgage borrowers in the market. (An Evaluation of Turkish Mortgage System from the Perspective of Global Economic Crisis, 2012).

According to Colton (2002), the mortgage system in the USA does not fully meet the requirements of hypothecation backed mortgaged specifically in civil law countries. In the US, the owner transfers ownership of a property to a trustee who is a third party in the agreement between debtor and creditor. However, it must be noted that the transfer of ownership is conditional and dependent upon the will of both debtor and creditors; the ownership is transferred back to the debtor once has repaid the debt against mortgaged property. In the majority of states of the US, despite having an entitlement to take over the property, the creditors do not take over the property unless there is a case of default. In some cases, the property is left with the debtor himself until such situation arises.

The US law has some conditions which favor the debtor in case of a worse situation. One of those clauses is that any condition in loaning agreement which makes the creditor absolute owner of the property primarily due to non-repayment of debt within the tenure is considered null and void and cannot be exercised in the light of US civil law (Stuart, 2003). In the above-mentioned situation, the creditor has a right to start foreclosure steps against mortgage real property. The law also permits the creditor to sell the house by means of the auction if a condition is put in mortgage agreement at the time of drafting the agreement. However, a minor mistake in the proceedings of the sale of property can be termed as null & void by the court. Therefore, the creditors often persist with foreclosure by taking courts into the process (Colton, 2002).

In the view of Stuart (2003), the US law also permits the creditor to transfer the mortgaged property to a third person. The transfer is performed by the delivery or endorsement of valuable papers; there is a need for official registration besides the delivery or endorsement in the case of a regular mortgage. As the mortgages are often transferred between two financial institutions in the financial market, the requirement to register the property is a core hindrance to this activity. To accommodate the registration process, the US state has already established an electronic mortgage registration system which has resolved the issue to a certain degree (Hawtrey, 2009). As discussed earlier, a common type of mortgage in the US is mortgage-backed securities (MBS). MBS need to go through the process of securitization and their operations mainly take place in secondary markets. To form an MBS, a pool of multiple mortgage loans is formed by the financial institution and

then these securities are sold to investors present in the secondary market by the issuance of certificates similar to shares or bonds. The investors in MBS share the return earned on the loans in the pool; however, they are not obliged to share any cost item of the pool. This illustrates that the investors in MBS are safeguarded against losses and entire credit risk is borne by the bank initiating the mortgage. The advantages of MBS to the issuing bank include the improved liquidity of the bank as a result of cash collection against issuance of the pool (Chatterjee &Eyigungor, 2011).

There are some key institutions operating in the US with the aim to perform mortgage financing duties. Some important of those institutions mainly focused on housing finance are discussed below.

2.1.1.1 Federal Housing Authority (FHA)

The FHA of US was established in 1934 by the department of housing and urban development. The institute was formed keeping some key objectives and needs of the state in mind. Those objectives include the provision of funds to the public at a low-interest rate, provision of guarantee for hypothecation and enhancement of secondary mortgage market in the country. The implementation of these factors has proved to be helpful for low and medium income groups in purchasing home (Hawtrey, 2009). Moreover, the FHA also ensures the default risk by households for the mortgage finance institutions. Today, FHA is the largest mortgage insurance company around the globe with over 34 million accounts insured since its inception (Hawtrey, 2009).

2.1.1.2 Federal National Mortgage Association (FNMA)

According to Wallison and Ely (2000), FNMA was established in 1938 and its main purpose is to organize the secondary market activities in the US. It helps the country balance the demand and supply for housing and enhance the liquidity of the housing market in the US. One of the rules of FNMA states that it will facilitate house loans to only those houses which have obtained a guarantee from the government and are also insured by Federal Housing Authority or Veterans Administration. FNMA has been active in the US mortgage market but it could not reach the desired level over the years. As a result, the FNMA was separated into two new corporations. One of the two counterparts was named New FMNA; it was privately owned and sponsored

by the US government. The purpose of separation was to extend the credit facilities through non-government-guaranteed mortgages (Courchane & Giles, 2001).

2.1.1.3Government National Mortgage Association (GNMA)

As a result of the division of FNMA, the GNMA was formed as a state-owned enterprise to finance the houses under the same department and ministry. The aims of the newly formed institute were also similar to FNMA; these include the provision of support to secondary markets and provision of insurance to mortgage-backed securities. At the same time, the GNMA aimed to start the securitization process in housing loans in the US. GNMA is wholly reliant on the federal budget and self-financing. The mortgage-backed securities of GNMA are generally insured by the Federal Housing Authority. Further, it is notable that the GNMA is very well reputed in the US; a guarantee obtained by GNMA is similar to a government guarantee which has the highest rating in any society (Hepsen, 2008; Dunn & McConnell, 1971).These are three main institutions handling mortgage lending in the US; there are numerous other institutions performing the same function which include Federal Home Loan Mortgage Corporation and Veterans Administration. These two institutions also perform similar tasks focusing on the issuance of housing mortgages and their insurance. The importance of the role played by these institutions is highly dependent on the housing mortgage loan rates prevailing in the US. The historical mortgage loan rate in the US is depicted in the figure below:

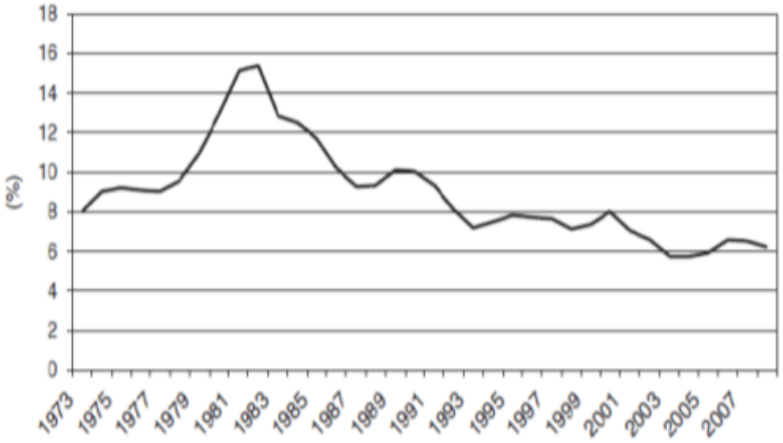

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Figure 2.1 - Mortgage Interest Rate History in the US

Source: Hawtrey (2009).

Further, the mortgage rate after these years is shown in the figure below:

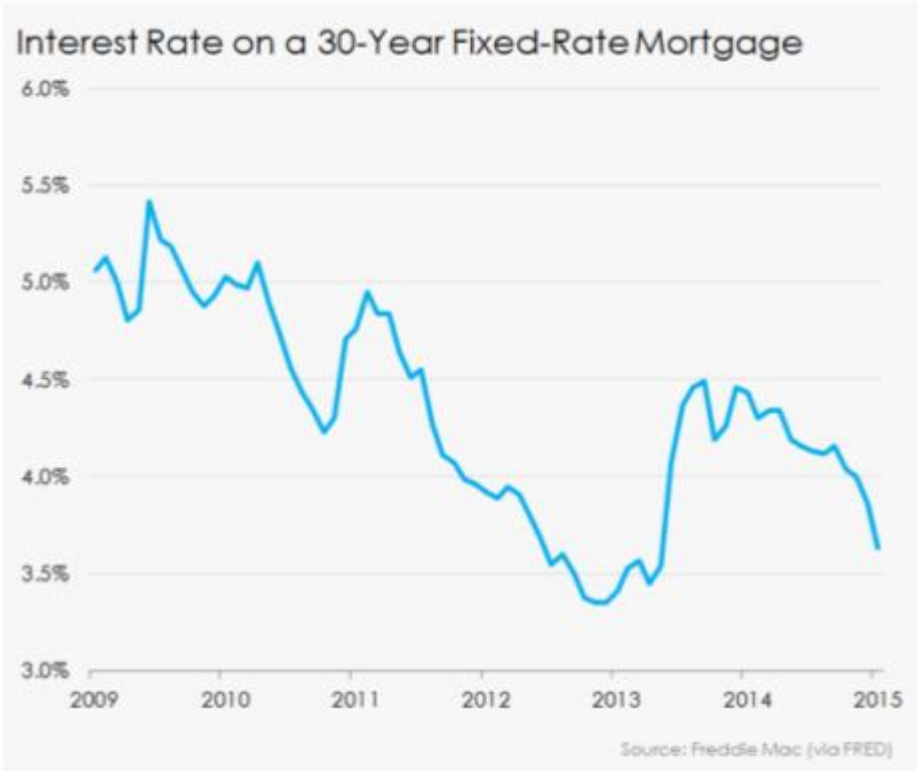

Figure 2.2 - Interest Rate on Mortgage after the year 2009

Source: Hawtrey (2009).

The figure above clears that the housing mortgage loan has declined from 8% in 1973 to 6% in 2008 despite very high increase till the year 1983. After 1983, the government has reduced mortgage interest in order to promote the construction and purchase of houses in order to improve the social indicators. The mortgage interest rate was around 3.6% at the end of the year 2015. In this respect, the house ownership rate in the US is shown in the figure below:

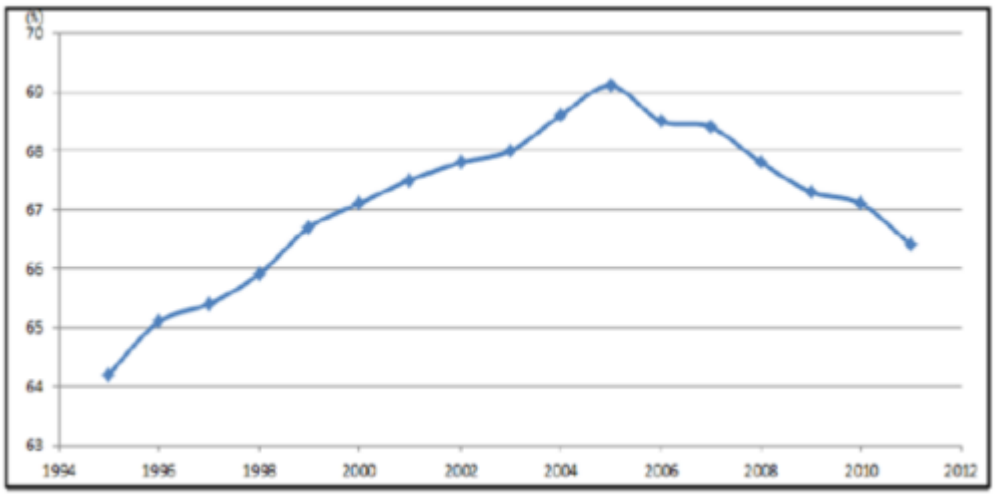

Figure 2.3 - Housing Ownership Rates for the US

Source: Callis &Kristin (2011)

The figure above illustrates that the housing ownership rate in the US was continuously rising till the year 2005. It started declining from 2006 due to the anticipation of the crisis in the sector and the rate further went down after the global financial crisis triggered from the US. It can further be noticed from the figure that the ownership rate has not started its recovery till the year 2011. However, despite the downfall in recent years, there is a net increase in ownership rate in the last 20 years (Callis &Kresin, 2011). The above discussion highlights that these institutions boosted the house ownership rate in the country to the extent possible but global financial crisis has affected the confidence of both the investors and debtors.

In the view of DU and CHU (2008), the contribution of US mortgage and financial market towards the construction and supply of houses has been enormous over the years. These institutions have provided shelter to a significant proportion of the population over the years. As a result, the gap between supply and demand has reduced boosting the country's economy at the same time. The positive impacts of US mortgage market are emphasized as a result of this research. However, there are researchers who have opined the negative prospects of the US mortgage and housing finance market. A research by Markus, Steinfield, and Wigand (2006) on the US mortgage market found that despite the high amount of money involved in the US financial markets, its mortgage market is very risky indeed. With the issuance of Mortgage Based Securities and Asset-Backed Securities, the default risk or credit risk of the loans is very high. It is generally agreed that the Asset-Backed Securities

focus onto provision of loan to the borrowers with lower credit rating and have the capacity to repay as per an analysis of creditor. Therefore, it suggests a high credit risk in the US as the borrower may be able but unwilling to repay the debt. The global financial crises which triggered from the US and affected almost all countries around the globe were also initiated mainly due to the role played by Asset-Backed Securities. It suggests that the US mortgage or housing finance market is highly volatile as compared to other countries (Greenlaw, Hatzius, Kashyap & Shin, 2008).

2.2 Mortgage in Germany

In the view of King (2009), the Germany has struggled with severe housing problems as a consequence of First and Second World War as the housing stocks became very unstable. As a result of World War II, approximately, 80% of the housing in Germany was destroyed or became unstable. Due to this instability, the demand for housing finance and development grew instantly and the higher role of capital markets was desired. According to Çobandağ, (2010), Germany is among those countries which have lowest occupation rate in their housing market, yet the mortgage system of Germany was the firstly used contract system majorly than in the other countries. It has special mortgage banking system and specialists are spread across the financial systems. Banks prefer to use extensive deposits to be used for granting loan over the mortgage market. Germany had the largest market in the Europe for a residential mortgage in 2004, due to mortgage the debt ratio in the GDP ratio in the country with 47.7 percent.

The mortgage market in Germany was dependent on the capital markets rather relying on the depositories. The bank in Germany focuses on bond markets to finance their mortgages which initiated in the 1800s. The mortgage banks are funded by dispensing the mortgage bonds (Geiger, Muellbauer, &Rupprecht, 2016). The Government of Germany regulates the mortgage banks and the mortgage bond markets. The licensed mortgage banks only can issue the bonds of the mortgage. The activity of these licensed mortgage banks are scrutinized and restricts them to lend residential and commercial property and to state and local Governments. Strict regulatory bodies have pertained made the market strong and investors were attracted to it yet borrowers were encouraged to finance their house through a mortgage. Initially, the amount of loan was less than 60% of the value of the asset.

Currently, mortgage lending is dominated by the cooperative banks which hold the 50 percent of the mortgage market; however specialized mortgage bank also has a strong role in the market. The market is supported by the local investors, not by the foreign investors due to competitive market but strict parameters restrict the funding to only loans with a loan to the value ratios of or below 60 percent (King, 2009).

A mortgage system accompanied by the contractual method is used in Germany. Different types of financial institutions including savings bank and specialized banks contribute to the housing finance in the country. All of these financial institutions are privately owned and they lend their own capital without any interference by the government. The German law only permits the long-term mortgages and there is a strict prohibition on short-term mortgages given the risk and difficulties involved for the debtor and creditor both (Hepsen, 2008). In the view of Stolz and Wedow (2011), building savings banks in Germany are specialized banks which focus on the provision of mortgage loans for housing. In the modern era, building savings banks are best operated in the Germany and have contributed significantly to the housing sector of Germany. The world is learning from this model and incorporating the necessary actions in their policies and procedures.

2.2.1 German Mortgage System

As prescribed by Stephen (2003), the German housing finance is mainly acquired by a completion of savings contract. The savings contract employs that when an individual is able to save his savings in a bank at a discounted rate in comparison to market can only avail the housing loan at a lower cost. This system generally does not help the lower middle class as seen in the case of US. This system is not friendly for the end debtors; if a guy cannot afford to maintain savings then he will not be able to obtain housing finance and purchase house accordingly. The core objective of this policy by financial institutions is that they operate by keeping mortgage interest loans as low as possible in order to lower the cost of housing finance in the country. The sources of these funds are also individuals who save with the bank at the lower rate and down payment of house to be purchased by debtors to the creditor (Green & Wachter, 2007).

The building savings banks are still operated in the Germany and have achieved success over the time as well. There are total 17 private sectors and 11 public sector

building savings bank in Germany and these have cumulatively built nearly 13 million houses in the country. The funds provided by these banks amounts to 800 Billion Euros since the World War II (Stephen, 2003).

2.2.1.1 Pf and Brief System

Another type of housing finance system used in the Germany is Pf and Brief System of housing finance. In Pf and Brief model, the housing loan is securitized and the funds are compiled into a pool. After the formation of this pool, the Pf and Brief are issued by the financial institution to finance their investments (Martin, 2011). Pf and Brief reached the volume of $182.5 billion by the end of 2007 indicating that it is the largest component of German bond market. The well-functioning mortgage market in the Germany has contributed significantly to the success of Pf and Brief model

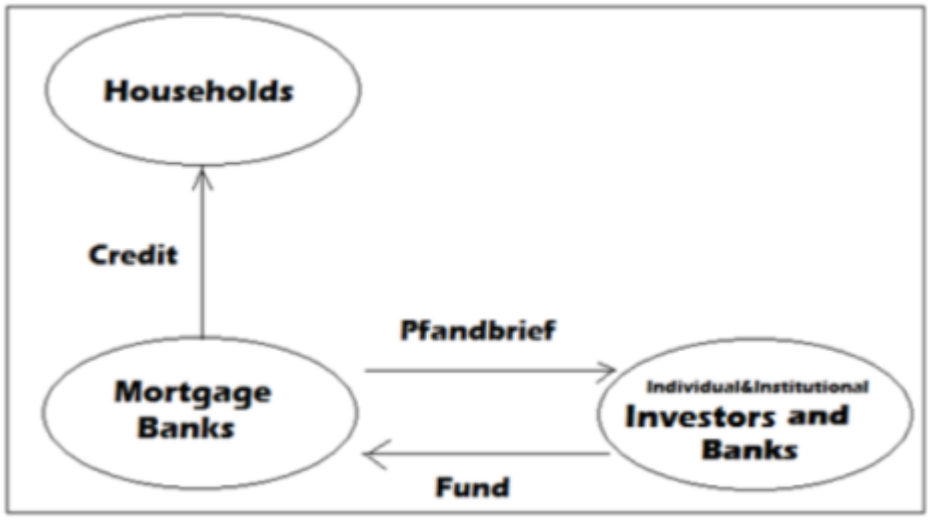

Figure 2.4 - Pf and Brief System

Source: Hepsen (2008)

The figure above can help the readers understand the Pf and Brief model currently operating in the Germany. It can be understood from the figure that the credit to households is provided by mortgage banks. However, to finance the credit provided to households, the bank also needs to generate funds at a reasonable cost. In this case, the banks generate funds from the investors and other banks by selling Pf and brief to the investors and collecting funds from them in return (Martin, 2011).

In Germany, mortgage banks are providing housing loans up to tenure of 25 years and finance maximum 60% of the value of the house. Remaining 40% has to be borne by the household applying for a loan. These measures are incorporated in order to limit the default risk on the part of the applicant. When an applicant inputs his own capital equaling 40%, he does not like to be sold through auction and will not like to involve in legal problems by making a default (Hardt & Lichtenberger, 2001). Further, it is mentioned by German lawmakers that the institutions involved in the housing finance cannot bear interest rate risk in addition to high credit risk. Therefore, the mortgage rate on housing finance and the securitized rate remain same at every time in Germany reducing the risk for the mortgage banks. As a result, it is impossible for a household to pay his future installments in advance except when the interest rate is deemed to be fixed for certain period. If the borrowers have become capable and want to repay the loan availed earlier than the end of tenure, they must pay an early repayment penalty to the respective bank as their revenue streams are hit adversely due to early termination of loans (Martin, 2011).

As mentioned in the discussion earlier, the government of Germany does not involve itself in the loaning business directly but it plays a role in the market by providing incentives and tax waivers to the investors and mortgage banks in order to support housing finance. This motivates the private sector to place their investments in the housing finance niche (Proxenos, 2002). From the above discussion, it must be clear that the German mortgage system is one of the efficient systems around the globe and many developing as well as developed countries are imitating their models so that the housing demand and supply can be met effectively. These findings are supported by an earlier research conducted by Hardt and Lichtenberger (2001) as well. This research found that the Germany has developed mortgage system which balances the risks for debtor, creditor, and investors at the same time. It is due to safety policy measures enforced by the government. The financial institutions are prohibited from taking the excess risk while issuing mortgage loan for housing or any other purpose.

2.3 Mortgage in Turkey

According to a research in 2014, Turkey is the 18th largest economy in the world and the 6th largest country in Europe. Turkey is also one of the countries around the

globe, whose population is growing at a much higher rate than the increase in global population. According to Taner (2014), the annual population growth rate was around 4.47% from 2008-2011. The increase in population directly increases the demand for houses in the country and in order to meet the demand, the supply of houses and housing financing needs to be increased. Despite the higher population increase rate and urbanization rate, the supply of housing is increasing at an ordinary pace. This is due to numerous factors and the weak mortgage market is one of the key factors behind lower supply. The mortgage system in Turkey has a huge potential to grow due to a number of factors such as increase in economic activity, increase in population, modernization, etc. The risk of default by borrowers is low in Turkish market due to stringent default risk related policies (Facts, 2017).

After the foundation of Turkish Republic, different housing policies were followed by governments in Turkey. Before its establishment in 2006, there were no private institutions which could involve in the business of housing finance in the country; however, government promoted private sector to contribute to housing finance as well (Taner, 2014; Ansay & Wallace, 2011). Historically, a reasonable housing finance environment has not been established in Turkey despite many improvements in models and policies over the years. As a result, people mostly rely on the personal savings and finance excess requirement by means of informal finance based on their personal relations and channels other than financial institutions. It is evident from the fact that, in the year 1999, approximately 62% of the houses were financed by the personal savings of individuals or households (Taner, 2014; Ansay & Wallace, 2011). However, the Turkish government has taken certain steps recently to improve the situation of housing finance mainly by the introduction of Turkish Mortgage Law as discussed in the following heading.

2.3.1 Turkish Mortgage Law

A draft mortgage law revamping the existing laws of housing finance was introduced to revise the housing finance system in 2007. This law was implemented effective March 6, 2007. It introduced several other laws such as Execution and Bankruptcy Law, Financial Leasing Law, and Law regarding Protection of the Consumers, several tax laws, particularly into the Capital Market Law. The purpose of introducing this law was to create a relationship between investors and consumers to

create a practical condition for a mortgage. However, this law did not succeed in the country (An Evaluation of Turkish Mortgage System from the Perspective of Global Economic Crisis, 2012; Ansay & Wallace, 2011).

The mortgage system in Turkey is such the lenders only provide mortgage facility to people who are high earners as this will provide them an opportunity to yield high adjusted rate of return. In the case of an executive proceeding, the collateral security is sold by tendering process if the borrower defaults on payment. In some cases, the lender can sell the property with borrower's consent without any executive proceeding. There are housing finance corporations available in Turkey which give information and awareness to the consumers on the interest rates, types of mortgages etc. (An Evaluation of Turkish Mortgage System from the Perspective of Global Economic Crisis, 2012; Ansay & Wallace, 2011). An important feature of Turkish mortgage market is uniformity. There is a consistency in rates, documentation, amortization, the maturity of mortgage in all types of mortgages available in Turkey. The mortgage systems in Turkey also involve the process of the undertaking which is a written directive which assures the lender that the borrower has the ability to return the amount borrowed and the worth of collateral security is similar to the mortgage (Lea, 1994).

Today, the mortgage system in Turkey is complex due to high-interest rates, complex documentation, different laws etc. Its mortgage system is different than other countries. The banks which offer this facility are DenizBank, Finansbank, Garanti Bank, HSBC Bank etc. The borrower will have to fill in an application and submit forms to avail this facility. The mortgage also includes an application fee which is different for every bank (Affidata.co.uk, 2017).

2.3.2 Mortgage System of Turkey

The housing finance of Turkey was established on the basis of US mortgage law. However, the mortgage is not fully applicable in the case of Turkish law and it differentiates the mortgage system in the two countries. As the US mortgage focuses on the transfer of possession of the property to the creditor and also permits the issuance of the mortgage by issuance of a promissory note to hand over the real property to the creditor. The case in Turkey is different; the Turkish law allows the mortgage on the guarantee to property only and no other instrument such as

promissory note is eligible for the issuance of the loan. There is also a stringent civil law which prohibits the acts specified above and financial institutions involved in such acts will have to face severe consequences (Ansay & Wallace, 2011).

The housing finance corporations of Turkey are also required to get the agreement of consumers on terms and conditions of the loan prior to the contractual arrangement and starting of transactions. The housing finance institutes are also required to complete these pre-contractual agreements at least 48 hours before the start of transactions. In the case of an early payment, the law requires the debtors to pay 2% more than the installment expected as the rate can vary. The interest rate is linked to the discount rate prevailing in the economy as the mortgage loan is long-term with tenure around 20-25 years (Chiquier & Lea, 2009).

In the case of default of housing loan, the treatment must be same as that of the consumer loan. Firstly, it is important to serve the debtor with a notice and not to initiate any other action against him simultaneously. In the case where the debtor is not paying installments on a consistent basis, housing finance providers are authorized to terminate the loan agreement. In the case of a termination, there are two methods to collect the entire amount due including interest on their investment. Firstly, they are required to send a notice to the debtor to pay the amount in full within a specified time. In the case of non-compliance, the creditor can sell the property by means of the auction and recover his amount similarly (Chiquier & Lea, 2009).

The housing finance method called mortgage-based securities is permitted under the new Turkish Mortgage system. It is called off the balance sheet method in Turkey; it does not have a legal identity and also do not belong to the assets of the issuer. It is prohibited to dispose of off assets of the fund in the case of losses because it is considered separate from the worth of fund. Further, it must be noted that the Turkish mortgage system was not much affected as a result of Global financial crisis despite a big hit to their banks. It was due to the fact that the Turkish system was not based on securitization and even it is less reliant on securitization in the modern era. Therefore, it did not get a major hit as seen in the case of developed countries where mortgage based securitization was so common (Chiquier & Lea, 2009).

In accordance with Chiquier & Lea (2009), the Turkish mortgage system has historically underperformed due to lack of progress in terms of policy specifics. However, as the new law has been passed, there have been significant changes in Turkish mortgage system and its performance and contribution to housing sector have improved. The public financial institution of Turkey namely TOKI has been able to do financing of houses domestically and has contributed to the economy at the same time. It is now recognized as one of the best housing finance institutions in the developing countries.

3. HOUSING FINANCE SYSTEM

3.1 Turkish Real Estate Market

In the view of Crowe, Dell'Ariccia, Igan & Rabanal (2013), the real estate market has seen growth all around the world in the recent decades. It is primarily due to the increase in population as people require houses to live in an increase in affordability of people in general. The real estate market has grown primarily due to investment by investors for the purpose of earning rent and capital gain. In line with global trends, the Turkish real estate market is also grown immensely in the last few years. In accordance with a recent report by Deloitte Turkey partner, Yildirim (2015), the real estate market growth rate even outperformed the GDP growth rate of the country in the year 2014 as supported by the following figure as well. However, the growth in real estate sector has shown a slowdown and as a result GDP growth rate has become higher than the growth rate in real estate.

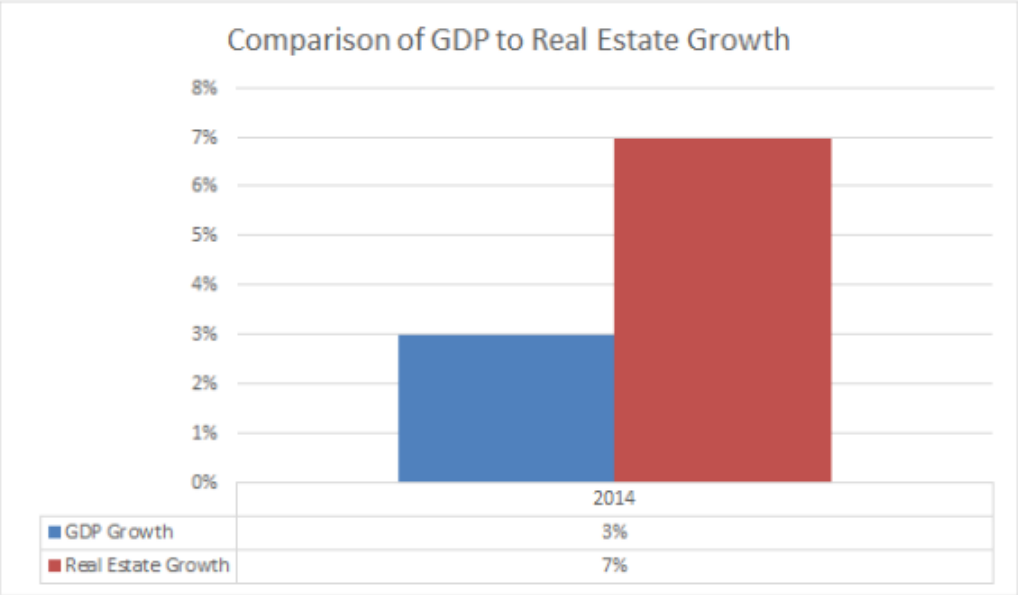

Figure 3.1 - Comparison of GDP to Real Estate Growth

Source: Yildirim (2015).

In another report by Global Property Guide (2017), the prices in the real estate sector went up by around 18% during the year 2016 suggesting a real increase of 8.17%. Conversely, the price went up by around 15% during the same year which implies a real increase of 5.43%. It is further discussed in the report that the future long-term outlook on the sector by financial and real estate analysts is also positive suggesting that price and volume both are expected to increase further. This suggests the potential of real estate in the Turkey and implies that it is one of the important sectors of the economy (Global Property Guide, 2017).

According to Cash4OverseasProperty (2016), Turkey has recently faced numerous socioeconomic problems in the form of terrorist activities as well as the recent attempt of a coup by the military. Despite these destabilizing events, the property in Turkey is surging continuously and is expected to go further up in the years to come. It is mainly due to the interest of foreigners in the real estate of the country. Two big foreign investors in Turkey are China & Arab countries which contribute a significant amount of FDI into the country. It is noteworthy to mention that apart from these nations, the British and German are also highly interested in acquiring real estate property in Turkey. The German population is acquiring property in Turkey because many Germans have Turkish origin and therefore, want to have some property in their country of origin. On the other hand, the British are impressed due to the leisure facilities, beaches and living standards in Turkey and therefore, are interested in acquiring property as well (Cash4OverseasProperty, 2016).

The report by Yildirim (2015) further illustrates that the foreigner investment in real estate in Turkey forms a sufficient portion of total FDI in the country. This usually varies around 20% to 30% of total FDI in each year. The growth of foreign investment in FDI can be traced to the fact that it was USD 2,013 Million in 2011 and after growth over 5 years, it reached USD 4,156 Million in 2015 despite a minor dip in 2015 when real estate sector and GDP growth rate of Turkey experienced negative growth. The trend line of total FDI investment and foreign investment in real estate sector is shown in the figure below:

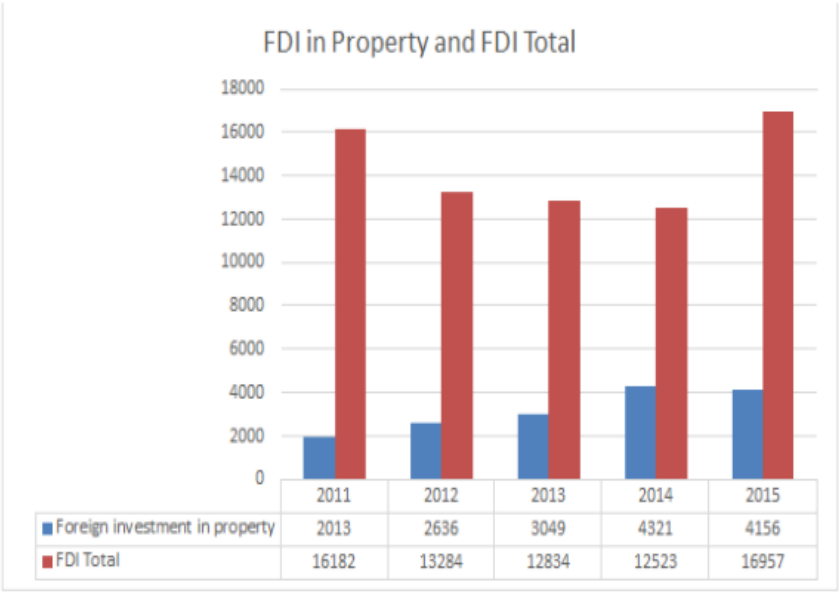

Figure 3.2 - FDI in Property and FDI Total

Source: Invest in Turkey (2017).

Further, the trend in foreign investment in property is shown in the trend line below:

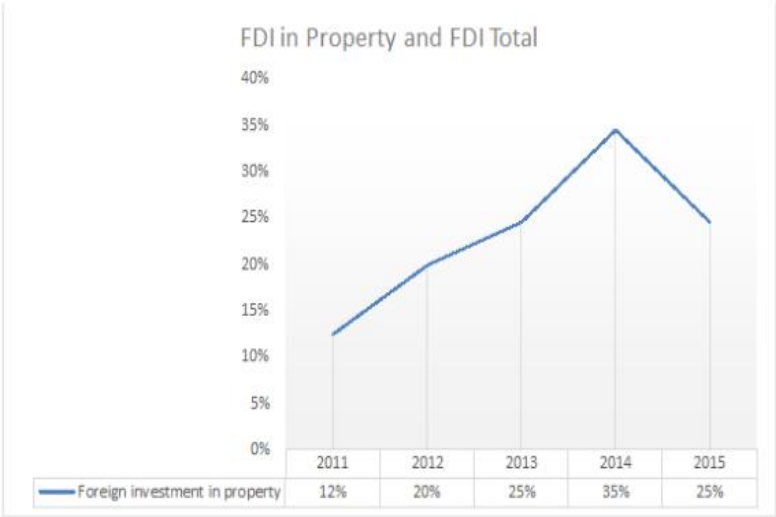

Figure 3.3 - FDI in Property and FDI Total

Source: Invest in Turkey (2017).

The figure above suggests that the FDI in property was growing persistently till the year 2014 but it saw a dip in the year 2015.

In accordance with Plazzi, Torous and Valkanov (2010), the real estate sector growth is affected by a number of factors both sector based and macroeconomic variables. Four of those key factors influencing growth are price, population, income on average and interest rate prevailing in the country. All four variables are discussed briefly in the following sub-sections.

3.1.1 Price effect

According to Iacoviello and Neri (2010), the pricing of houses plays an important role in the determination of growth of real estate market. It must be noted that likewise other sectors, the growth in this sector is also generated as a result of demand and supply in the market. As the demand exceeds supply, the prices go up and vice versa. As prescribed by Cash4OverseasProperty (2016), the pricing in the housing market of Turkey is high because of both foreign and local investment in the sector leading to higher demand. The pricing has started to hinder the growth in the sector as well because everyone cannot afford a home then as seen in the year 2015. It is also noteworthy that many people cannot even afford housing financing given the markup expense and repayment capacity of the borrowers.

3.1.2 Population effect

In the view of Saiz (2010), one of the major causes in increasing demand for houses is due to growth in population. As the population grows, people need shelter so their purpose is to purchase a house for their living or take on the rental agreement. In both cases, the increase in population contributes to the demand for housing and hence affects each and every dimension of real estate sector. The population of Turkey is around 77.7 million at the end of 2014 and its median age is about 30 years at the end of same year. According to the Association of Real Estate, the urbanization rate in Turkey is 78%; it suggests that the urban population of 60 million in 2014 will be 71 million in 2023 (TOKI, 2017). The graph showing a forecast of the population is shown below:

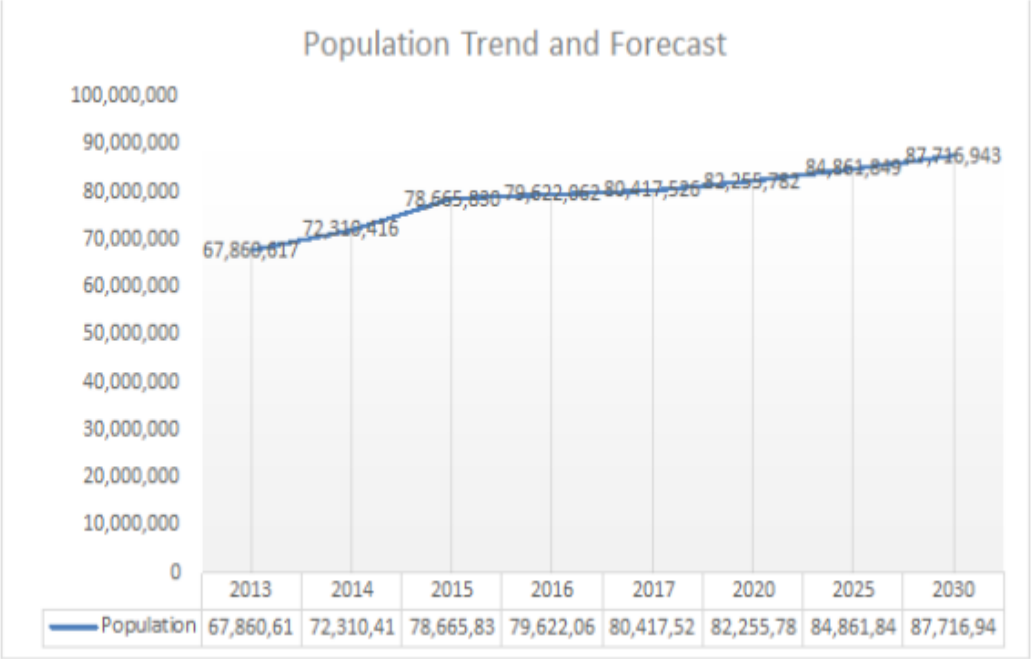

Figure 3.4 - Population Forecast

Source: WorldoMeters (2017).

It suggests that both population and urbanization in Turkey are expected to grow steadily and increase the demand for the housing sector and contribute to its growth. In the case of Turkey, the population grew at 1.3% in the year 2013 and grows more than 1% in the years following as well (1.22% in the year 2016). It suggests a high growth rate in population and illustrates that demand for housing will further be boosted in the years to come. It implies that the housing sector will continue experiencing higher growth as the shelter is a basic need of individuals (WorldoMeters, 2017).

3.1.3 Income effect

Many researchers have stated that the higher income of people is quite necessary to achieve sufficient growth in the real estate sector in any country. As the GDP per capital increases, the investment in real estate also increases at a rate similar to that of income. The rate of growth of property can even be higher than the growth in income because real estate growth is affected by multiple factors at any given time (Iacoviello and Neri, 2010). Though the GDP per capital growth in case of Turkey has fluctuated the housing market has grown which is possibly due to the investment by foreigner into the housing sector of Turkey (World Bank, 2017).

3.1.4 Interest Rate Effect

As explained by Plazzi, Torous, and Valkanov (2010), all the financial markets are highly correlated regardless of whether these are based on financial assets or real assets. Therefore, the discount rate or market interest rate plays an important role in determining the demand for housing and eventually growth in the sector. As the interest rate goes up, investors find it unattractive to invest in risky real estate assets and find it easier to invest in the bond market. In the case of Turkey, the interest rate has been on the average side. Therefore, it is perceived that the interest rate affects the growth of housing sector negatively because investors find it reasonable to invest in bond markets.

Overall, the discussion on Turkish Real Estate market shows that the sector has grown immensely in the recent years and is further expected to grow considering both domestic and international investment into the country. It is noticeable from the discussion that key factors affecting real estate markets are also positive for the outlook of the sector in Turkey. In a nutshell, it can be stated that the real estate property in Turkey is a desirable investment and contributes significantly to the economy of the country.

3.2 Housing Finance History in Turkey

According to Davis and Van Nieuwerburgh (2014), the need for housing finance arises as a result of rapid urbanization and poverty in the developing countries. As a result of non-affordability, the government in developing countries often provides individuals with subsidized housing finance as the shelter is one of three basic needs of an individual. In line with other developing countries, the public of Turkey also requires housing finance to afford houses in the urban areas as the percentage of house ownership is 70% suggesting that other 30% still require houses. It is widely agreed that Turkey has been able to improve the system of housing finance to cater its demand. However, the housing finance in Turkey is still not sufficient to meet the needs of potential house buyers as only 3% of the housing finance is derived from business system suggesting an insufficient role of the banks (Yildirim, 2015).

In the view of Özdemir (2011), likewise, other countries, the purpose of housing finance in Turkey is to provide finances to individuals who tend to buy houses and

builders who want to build a housing project. An effective housing finance institution in the society leads to the easy purchase of housing by common individuals and hence increases demand for housing in the country. It has many multiplier effects on income, employment, and GDP of the country. As per the constitution of Turkey, article no. 56 and 57 housing is a basic social and economic right of common public and therefore, it is important to finance houses in the economy for better satisfaction of needs of individuals (Özdemir, 2011). In order to accomplish the objectives of housing finance, a developmental financial institution named TOKI was formed in the 1980s which are directly looked over by the chief of state. The TOKI is termed as a great housing financial institution considering the development taken place in real estate after its formation. The first successful period of TOKI was between 1984 and 2002 when the institution was able to develop 43,145 houses around the country and it also financed 940,000 houses during the same 19 year period.

However, despite milestones achieved by TOKI, the housing supply in Turkey is unable to match the housing demand in the country. As a result of this shortfall, the number of illegal houses is on a rise. It refers to the construction of a building on a public land or owned by someone else. During the five-year period ending 2000, the demand for new houses was estimated to be more than 2.5 million houses and only 1.3 million houses were built during the same period suggesting a significant shortfall during the period. This shortfall does not only pertain to these specific years but is observed in Turkey generally (Coşkun, 2016). Further, in the view of Coşkun (2016), the main reason behind the construction of shanty or illegal houses is due to the fact that people with lower income are not considered in housing plans because of inaccessibility to housing finance and non-affordability of that particular segment. It is further argued that due to excess amount of illegal houses present in Turkey, it appears to have sufficient houses to accommodate citizens. However, if those houses are removed or not considered into the analysis, there is a strong need for construction of houses in Turkey even in 2017.

Historically, Turkey has opened various institutions to accommodate housing finance over the decades. Last public sector institution was TOKI, which is already highlighted under discussion. After the formation of TOKI in the 1980s, it has been able to finance some portion of unsatisfied housing needs in the real estate sector. TOKI is key institutional public development to not only finance the housing in the

country but perform development acts at the same time. Currently, TOKI is performing effectively but the lack of capital available to TOKI is hindering its growth and therefore, the major chunk of excess housing demand is still not met by the supply (TOKI, 2017; Coşkun, 2016).

Though the historical aspects suggest that there are severe problems pertaining to housing finance in Turkey, some measures have been taken recently to improve the situation. The improvements are primarily due to studies carried out by TOKI and other milestones achieved in the perspective of housing finance and development of the sector as a whole. Numerous other steps have also been taken by regulatory authorities to better the public; these steps include the focus on insurance of houses and fast registry system (Turel & Koc, 2015).

Though Turkey has a fast housing registry system and housing insurances are available in the country by the public sector but there are numerous challenges faced by the sector in Turkey as well (Turel & Koc, 2015). These challenges have hindered the growth of housing finance in the country over the years and these can be resolved by taking the following measures:

- Firstly, there is a need to define the housing finance and primary borrowers in the books of Turkish law.

- As the time needed to foreclose the mortgage is significantly higher in Turkey like other developing countries, there is a need to form regulations which can reduce the mortgage closure time. These may include expediting all the processes necessary before the mortgage is issued.

- As the appraisal of the property is weak and slow in Turkey, there is a strong need to regulate appraisal profession including both individual appraisals and companies doing the same business.

- The regulation of customer service issues is also needed in Turkey alongside other strategies.

- The mortgage capital market instruments also need to be regulated.

- The secondary financial markets are highly important so it is important to regulate secondary market institution as well.

- Provision of tax incentives is also important to support the borrowers pertaining to housing finance (Günay, Koramaz & Ozuekren, 2014; Turel & Koc, 2015).

These are some of the measures to improve the mortgage based borrowing in Turkey where the housing finance has suffered mainly due to policy loopholes (Turel & Koc, 2015). Günay, Koramaz & Ozuekren (2014) also conducted a research to study the effectiveness of housing finance in Turkey to boost the housing sector. They found that the housing finance forms very smaller portion of total housing purchases in the country which is due to lack of focus of banks and FIs on housing finance in specific. The banks focus more on corporate loaning to ensure smooth cash flows illustrating higher earnings at a right time. It is suggested that there is a need for government interference and provision of subsidies to the housing market so that FIs promote housing finance among the masses (Günay, Koramaz & Ozuekren, 2014).

In a nutshell, the house finance history of Turkey began in the 1960s and it improved significantly with the formation of TOKI in 1980s. Though the government has a special focus on the area, the housing demand still exceeds housing supply by a significant margin. It is due to lack of capital available and lower income of people and has led to illegal buildings in the country. However, some measures have been taken recently to improve the situation. Still, some recommended measures need to be taken in order to better match the needs of individuals. TOKI needs to expand its portfolio further to finance more houses as the demand almost doubled the supply in the early 2000s.

3.3 General Types of Housing Finance

The Housing Finance schemes can be classified into different types on the basis of different factors. For the purpose of this paper, it is divided on the basis of nature of financing schemes and purposes of financing by borrowers. According to Çobandağ (2010), the housing finance can be classified in following categories on the basis of nature of financing:

- Fixed Rate Mortgage: It is also known as a classical mortgage; the markup rate is fixed over the tenure of the loan in this type of mortgage. Therefore, the amount paid is pre-determined and risk to the borrower and lender is low. Generally,

borrowers prefer fixed rate mortgage when they expect the market interest rate to go up in near future. On the other hand, lenders prefer fixed rate mortgage when their expectation is that the market interest rate will go down in future (Scanlon, Whitehead, Pichler-Milanović & Cirman, 2004). Though this type of mortgage leads to pre-determined payments but there is very high-interest rate risk associated. If the interest rate in the market goes up/down in long-run significantly, it will lead one of the two parties involved in loaning to incur losses. Therefore, this type of mortgage financing is not desired in the modern era (Çobandağ, 2010).

- Floating Rate Mortgage: It is most widely used a type of housing mortgage as it overcomes the additional interest risk posed by fixed rate mortgage. Since the mortgage is a long-term loan, therefore, it is desired to be based on floating rate. The markup on a mortgage is linked to the benchmark of interest rate in this case and as the market interest goes up or down, the rate on the loan also varies accordingly (Scanlon et al., 2004). It can be beneficial for the borrower if the rate goes down and vice versa if the interest rate goes up. Therefore, it is a win-win situation for both and also markup on a mortgage does not contrast the prevailing market interest rate in the country. It is also widely used for long-term loans in Turkey and their public housing financing institution namely TOKI also uses floating rate to lend the money to the public. A major drawback for borrowers is that they cannot define a constant budget to service the debt obtained (Scanlon et al., 2004).

- Insured and Conventional Mortgages: Another type of classification classifies the loans into insured and conventional mortgages. The mortgages originated by banks and guaranteed by a federal authority are termed as insured mortgages. On the contrary, the conventional mortgages are also issued by financial institutions and are insured privately as well but these are not guaranteed by federal authorities. Whenever the loan to value ratio is higher than 80% then the borrower needs to ensure a private guarantee before availing the financing. This guarantee if often obtained by private insurance entered into by the borrower (Scanlon et al., 2004).

- Graduated Payment Structures: In this type of housing finance, the repayment schedule is set considering two factors in mind. Those factors include increasing income of individuals over time and inflation rate. Therefore, the installment is set lower initially and increases gradually with respect to time after accounting for

inflation in the economy. Over the long-run, the monthly repayment may vary greatly depending on inflation prevailing year to year. An advantage of graduated payment system is that it becomes possible to reduce the burden from current income which is lower than future income in most of the cases (Andrews, Sanchez & Johansson, 2011). However, there is a risk that income of the borrower may not increase but the interest is bound to increase in inflationary periods.

- Growing Equity Mortgages: This type of housing loan refers to a system where the annual increases in installments are used to reduce the loan outstanding and hence making the loan cheaper for the individuals. It is further discussed that growing equity mortgages are beneficial for individuals if they expect their income to rise on a consistent basis. It is highly avoidable for individuals who are involved in risky businesses for their earnings (Donner, 2000).

- Shared Value Mortgages: This refers to a housing loan agreement where the borrower agrees to share a certain portion of appreciation in the value of the property with the lender. It must be noted that the value will only be shared in case of appreciation and there will be no sharing the case of loss on investment in the house (Andrews, Sanchez & Johansson, 2011).

- Second Mortgage: When two mortgages are issued on the same property, the second one is termed as the second mortgage. Second mortgages can be achieved when the homeowners need a loan for an extension of building or renovation of the existing structure. Generally, the second mortgages have the shorter maturity as compared to a regular housing loan. The maturity or tenure varies from 3 to 7 years in most cases. It must be noted that there is a difference between a charge of 1st and 2nd mortgage holder. First mortgage holder has superior rights as compared to the 2nd mortgage holder i.e. 2nd mortgage holder will only be paid after clearance of all dues of 1st mortgage holder (Scanlon et al., 2004).

- Subprime Mortgages: Perhaps the riskiest type of the housing finance loan is subprime mortgages. Whenever the loan is provided by a financial institution to anyone who does not qualify for the loan otherwise mainly due to lower credit rating can come and avail financing through subprime mortgages. Since these are deliberately issued to poor credit rating customers, it yields very high risk and

therefore, interests set for a subprime mortgage must be high in line with the risk being faced by a bank or financial institution (Demyanyk & Van Hemert, 2011).

Other than these two types, the loans are also structured on the basis of increasing or decreasing installments and hybrid financing is also possible. In hybrid financing, the rate of financing remains fixed for partial tenure and becomes floating for the rest of tenure (Scanlon et al., 2004).). The housing financing classified on the basis of purpose of financing includes following types:

- Home Construction Loans: As prescribed by Donner (2000), one of two most common purposes of housing loans is the construction of the home. For this type of housing finance, the borrower generally gets a moratorium period for construction during which borrower does not need to repay the installments. However, the markup is charged and accrued during the moratorium period as well. This type of loan also adds to economic activity in the country as construction requires labor and all other resources necessary such as cement.

- Home Purchase Loans: The second common purpose of housing loans is the purchase of already built home by an individual in order to meet their basic needs. Unlike construction, there is no moratorium period when the loan is issued for the purchase of a home (Andrews, Sanchez & Johansson, 2011). This type of housing loan does not affect economic activity directly as the borrower acquires already built the unit.

- Home Renovation/Extension Loan: Apart from construction and purchase cases, the housing financing is also provided for home renovation or extension. The renovation of the house refers to work on the already built structure and extension refers to an extension of the structure of the area of the house (Donner, 2000).

- Bridge Loan: In the view of Andrews, Sanchez & Johansson (2011), bridge housing loan is required when the borrower needs financing for short-term to meet the debt servicing of an earlier mortgage. This loan usually varies from six weeks to a maximum of two years in the extreme cases.

- Land Purchase Loan: Sometimes, the individual aims to avail house financing to purchase a piece of land for the purpose of housing. The land purchase loan is generally medium term and not available in many countries including Turkey. The

land purchase loan is often linked with a construction loan to ensure that home is built on the land purchased (Andrews, Sanchez & Johansson, 2011).

3.4 The Direct Route

As prescribed by Brueggeman and Fisher (2008), the direct route of financing is a most informal way to finance a house or any other asset. It refers to the type of financing, where money is directly transferred from an individual with a surplus to individuals or businesses who require money. In simple words, there is no role of financial intermediation in the direct route of financing. It is widely used in housing finance in developing and especially backward countries. Though it is easier to receive money as a borrower with less stringent requirements but this loan is generally expensive. It also carries a very high risk for both the parties especially for the lender in the form of credit risk. It is important to understand that the financial institutions are able to reduce transaction costs by means of economies of scale and are also good at diversifying the risk. The risk is diversified as a result of large investments in different areas and financial institutions even diversify in terms of types of clients as in the risk is balanced by selecting few high-risk clients and compensating it by selection of few low-risk clients (Çobandağ, 2010). Further, it is discussed that the direct route is often opted by individuals who cannot access formal financial institutions or banking channels and as discussed, it is more common in developing countries (Çobandağ, 2010).

According to Brueggeman and Fisher (2008), the direct route of financing is highly risky especially when it is used for long-term financing. Since there are no formal means to finance, the legal action against borrower becomes difficult in the case of default. Often these loans are unsecured and issued on the basis of references. In that case, the credit risk increases even further because there is no proper securitized collateral with the lender. Therefore, the direct route of financing is not recommended by financial analysts and economists in general. However, individuals go for it considering convenience and lenders consider higher interest rate on the amount being issued. George (2003) conducted a similar research to study the housing finance system and concluded that the direct route has many disadvantages to the macro-economy as well because it does not only increase individual risk but also affects the risk as a nation. When the housing loans collapse, it can lead to

severe problems such as credit crisis and lack of new housing projects in the economy.

The discussion above suggests that despite the provision of convenience in the direct route of financing, there are severe risks associated with this type of financing. Therefore, to avoid those risks the contractual route and deposit financing route grew significantly.

3.5 The Contractual Route

The term contractual route of housing finance refers to the finance provided by the financial institution to individuals, groups of individuals or co-operative societies directly. In the case of contractual financing, special financial institutions are free to develop their own criteria and regulations for a loan to be provided to the individual. These criteria and regulations commonly include security, margin, and age of applicant and repayment schedule of the loan (Çobandağ, 2010). It must be noted that the contractual route of financing is only done by special financial institutions such as TOKI in Turkey can go for contractual financing route. Every financial institution such as a bank cannot go for the contractual route of financing because this type is performed by channeling the funds of individuals who especially want it to be allocated to a specific sector (TOKI, 2017). Another feature of the contractual route is that the loans are issued at a concessional rate as compared to direct route and deposit financing rate; it is because of involvement of special financial institutions. This feature serves as both an advantage to borrowers and disadvantage to lenders of money as the financing is cheap in the given methodology.

George (2003) conducted a research and concluded that contractual route is beneficial when the specialized financial institution is public limited and it can afford to earn the lower spread. The ultimate purpose of the contractual route is the benefit of the borrower so if the financial intermediaries involved charge higher spread then this benefit is nullified on the part of the borrower and then there is no difference between deposit financing route and the contractual route from the viewpoint of customer or borrower. In the case of Turkey, their public housing finance institution namely TOKI can do contractual financing and it has been involved in it. As a result of TOKI's contractual financing, the individuals have received loans at a lower rate

and it has helped housing sector of Turkey develop at a reasonable pace. It must be noted that no financial institution other than TOKI cannot be involved in contractual route given its nature and markup being charged (TOKI, 2017).

Further, Green and Wachter (2007) conducted a research and found that the practice of contractual route is also common especially in the developing countries. It is due to the focus of those governments on meeting the demand for housing by the provision of support in form of availability of cheaper financing. It is believed that the core purpose behind these concessional loans is not the only provision of shelter but it also generates economic activity all around the country and therefore, it plays an important role in the growth of the economy as a whole. The disadvantages of the contractual route include lower rates of return for both investors and financial intermediaries involved in the process.

3.6 The Deposit Financing Route

The deposit financing route is a most common route in the modern world; it means that financing is availed from depository financial institutions such as banks and another depository FIs. The individuals with surplus or savings keep their excess money as the deposit in banks which are regulated to most productive usage by means of channelizing by the bank. In the case of housing finance, the depository financial institutions lend money to individuals who aim to purchase houses for their personal use. The role of financial intermediation is very important in these types of loans as the institutions perform different functions ranging from a collection of deposit to its processing till the issuance of housing or any other loan from deposits (Fabozzi, Modigliani, Jones & Ferri, 2002).

There are a variety of depository financial institutions operating in every country including both developed and developing countries. The commercial and savings banks are most common types of depository institutions which provide a variety of financial services to their customers; the provision of housing finance is one of their many services. It must be noted that the depository financial institutions do not primarily focus on housing finance but treat it as one of their many portfolios. As a result, they do not provide special concessionary rates to the individuals availing housing loans (George, 2003). However, some specialist lending institutions in

developed countries are also depository in nature as these accept deposits from the customers. An example is Building Societies in the United Kingdom as it focuses on building real estate property through financing only and accepts deposits at the same time. However, most of the specialist financial institutions do not accept deposit and such is the case for TOKI as discussed earlier as well (TOKI, 2017).

In the view of Fabozzi et al. (2002), the depository financial institution firstly focuses on the collection of deposits and then decides where to channelize those deposits for the best utilization of money. It is noteworthy to mention that these institutions are able to collect deposits only if the interest rates prevailing in the market are fair or provide a justifiable return on investment. Deposits are imperative for these kinds of institutions as these do not use owners' equity and cannot avail funding from the government to remain operative. These institutions also lend money when the interest rate charged justifies the transaction fees and interest been expenses on deposits maintained. The discussion illustrates a risk for housing market if the reliance is put on depository financial institutions only. The risk is associated with lower supply in case these institutions are not able to generate enough deposits or these are able to lend money to more productive areas paying higher interests on debt availed (Green & Wachter, 2007).

In the view of Fabozzi et al. (2002), the depository financial institutions have attained great success over the last few decades and are a very common method of housing finance as well. In developed countries, heavy reliance is placed on these types of institutions in the absence of national housing finance company. However, there are risks associated with every type of mortgage; these types of risk include the default risk, interest rate risk in the case of fixed rate mortgage, liquidity risk, and numerous others. These risks are borne by the financial institution and borrower only; whereas the depositor is entitled to get his money back whenever desired. Schnure (2005) also conducted a research and found that there is a lack of focus towards housing finance on part of depository financial institutions given their diversified product line. This is why developmental financial institutions pertaining to housing are formed around the globe especially in the developing countries. The discussion suggests that it is widely used the route of financing in current era including both housing finance and other types of financing provided by these institutions.

3.7 The mortgage bank

The mortgage banking system is a formal method to finance a house and is applicable largely in the case of developing countries. In this type of banking, the mortgage bank issues the credit to borrowers and funds these finances by selling securities in the capital markets. Since there is a high reliance on capital markets, it is imperative to have an effective capital market system in the country. The securities issued in the capital market are liabilities to a mortgage bank and these are usually purchased by other financial institutions which have excess money expected to remain with them in the long-run. Since the housing finance requires a long tenure, the liabilities of mortgage bank must be matched with the assets accordingly. Considering the concept of matching assets with liabilities, the mortgage banks are recommended to have long-term liabilities only (Schnure, 2005).

According to Shin (2009), the mortgage bank model is a mixture of both consumer and wholesale banking. Its financing technique is the sale of securities to institutional investor implying its wholesale component. The mortgage banks are generally not permitted to collect and maintain deposits from individual or corporate customers. On the contrary, their target borrowers only include individuals who tend to purchase or build their own houses. This borrowing aspect employs the concept of consumer banking.

In the view of Schnure (2005), the mortgage banks have proved to be inefficient over the years as they have not been able to cater the market and remove the influence of second mortgages. It is primarily due to the limited funds available to the mortgage banks. Further, it is argued that the mortgage banks are not much success due to the fact that they have stringent conditions and requirements for loaning as compared to secondary mortgage markets. These stringent conditions often cause the clients to shift to secondary mortgage instead of availing a loan from mortgage bank which is more regulated and less risky for the macro-economy. In support to this, Piskorski, Seru & Vig, (2010) conducted a research on mortgage financing and concluded that the mortgage banks are not that successful and cause risk to the economy as well but they came up with different reasons. They concluded that the mortgage financing has caused distress to customers as a result of renegotiation over the periods because the markup raises over the reach of risk appetite some clients. Some researchers contrast

the findings, as well as Shin (2009), found that the mortgage financing is doing well in most of the economies. However, the sector has been helpless due to lack of regulation and support from the government authorities. It is further believed that the mortgage financing could have been a big success if regulatory authorities have played their role well.

Further, Shin (2009) researched on a similar topic and found that the practices of mortgage banks vary between the countries. They studied the practices of mortgage banks in both US and European Union (EU) and found that the mortgage banks in two different areas have a different focus, criteria for issuance of loan and regulation. Thus the efficiency of mortgage banks varies greatly among the countries. It must be noted that the role played by mortgage banks is Turkey is highly insufficient. There is a lack of focus on mortgage and house financing by banks and as a result, consumers requiring credit often suffer and need to go to secondary markets of mortgage financing as seen globally (Global Property Guide, 2017).

3.8 Secondary mortgage markets route

In the view of Demyanyk & Van Hemert (2011), whenever the mortgage is sold to an institutional investor having already insured the property, the market is known to be secondary mortgage market. In this case, the mortgage bank just creates a mortgage and sells it to financial institutions at a certain profit rate. The mortgage bank just grants the services of forming the terms and conditions of the loan and communicating the target market about the advantages of services being offered. Another important point of differentiation between the mortgage bank and secondary mortgage markets is the trading of existing securities in secondary mortgage markets. Whereas, the mortgage bank only accounts for sales of new mortgages directly to the people who need houses. According to Lehnert, Passmore, and Sherlund (2008), the secondary market of mortgage is responsible for the generation of liquidity in the markets; whereas, the primary market provides the actual loan to the borrower. In other words, there is no new loaning in the case of secondary markets and the loans already present in the market are forwarded.

In the view of Lehnert, Passmore and Sherlund (2008), the role of the secondary mortgage market is very critical for the survival of housing market in the country. It

is found that only a few households have enough money to buy a new home and as a result of the unavailability of money, the secondary mortgage market is highly desirable by those individuals because of the higher credit limits and fewer restrictions on utilization of funds. It is also discussed that if secondary mortgage markets were not present, housing market around the globe may not have grown as much as it is growing today. This type of financing allows the borrowers to arrange financing from investors domestically or internationally by securing their loans through mortgage of the house they are purchasing. Lea and Bernstein (2000) conducted another research in this area and found that the role of both primary mortgage and secondary mortgage market is important. He also concluded that both the markets are relevant and interdependent all around the globe. It is found that the primary mortgage market assists the development of secondary mortgage market because it is used while the funds are not available in the earlier one. Another research by Aalbers (2008) contrasts the findings of two researchers discussed above as it is found in this research that the risk generated by second mortgages is significantly higher than the benefits generated. It is discussed that the sub-prime mortgages have a very high bankruptcy risk and can cause damage to the whole economy as well and the world has already observed a shock due to this mistake so the reliance on secondary markets of mortgage needs to be reduced.

According to Shin (2009), the mortgages formed as a result of secondary market transactions are often termed as second mortgages. There are different advantages and disadvantages associated with second mortgages. Firstly, since the second mortgages are based on equity of borrower in the property, it allows the borrower to spend the financing for any purpose of his own at a lower interest rate than a credit card and personal so this is beneficial for the borrower in this perspective. From the perspective of the lender, these loans are considered safer and less risky because these are secured by the mortgage of houses. Thirdly, there are tax benefits of availing a loan like second housing loan and these tax benefits can be claimed as tax rebates. Alongside these benefits, there are disadvantages of second mortgages as well; these include the high-risk factor even though these are considered less risky by banks. An example of the riskiness of these loans is the sub-prime mortgage crisis of 2008 also termed as a global financial crisis which affected most of the countries in the world and arose due to second mortgage loans when the bubble of real estate

burst in the US economy (Aalbers, 2008). Another disadvantage in perspective of borrowers is higher processing and closing costs required in addition to markup charged for the period. This burdens the borrowers more and often discourages the borrowers to go for this type of mortgage financing (Lehnert, Passmore & Sherlund, 2008).

If we analyze the case of Turkey, there is also high reliance on secondary mortgage markets as banks only account for 30% of the house financing and only 70% people have the capacity to buy their homes or own houses currently. This suggests that remaining households go for secondary mortgage financing and illustrates a high-risk profile for real estate sector of Turkey. Necessary actions need to be taken by regulatory authorities to ensure availability of formal house financing through banks so that this risk can be mitigated (Yildirim, 2015).

4. METHODOLOGY

4.1 Basic Concept of Conjoint Analysis

For the purpose of analysis of the research, the conjoint analysis is being used. The basic concept of conjoint analysis is to develop the understanding of the preferences of the consumer for any specified product or services. It is a multivariate technique that will enable the researcher to develop a clear understanding. The technique is based on data collected through a survey by the researcher to study a number of consumer's attributes that may include benefits, features, and functions in particular to any selected service or product. (Smith & Fennessy, 2011)

In this research, the basic objective of using conjoint analysis is to understand which combinations of attributes are more influential on the choice of the respondents while he/she makes a decision on purchasing the product. The researcher has used a controlled set of products and services for the chosen market in order to have a better understanding of the preferences and how their preferences vary on the basis of different combinations of the products and services with regards to mortgages. These various implicit valuations will be used to create different market models to help make estimates of the market share and revenues along with the profitability that can be derived from new designs.

For the purpose of research, the term factor is used to define the specific attributes and the characters of the products in the mortgage industry. The term level is used to describe the possible values that each factor can have. The service or product in the conjoint analysis is described on the basis of its level on the possible set of factors that characterize it. The combination of these factors based on the selected product and service is being described as treatment or stimulus, in the research by the researcher. (Hair, et al, 1999)

There are a number of advantages for using conjoint analysis for research purpose. The major advantage is that this analysis helps the researcher know the consumer's specific behavior with regards to their service and product. The behavior of the consumer, being majorly dependent on the three major factors those include the economic rationality, maximum benefits that he can drive on consumption of the good or service and the limitation and optimum while he makes decisions. (Hundert, 2009) All these can be measured with the help of different combinations of attributes and level of the product and service in the conjoint analysis. The conjoint analysis also provides the researcher to uncover and to reveal some of the hidden drivers that may not be otherwise apparent to respondents themselves. Other than that, the conjoint analysis, if designed appropriately, can help the researcher to build a model that can link the interactions between a number of attributes and levels, which can help the researcher and the market players to have needed base segmentation of the market. (Green & Srinivasan, 1978)

The researcher while using the conjoint analysis must be careful too, as the designing of this analysis is a very complex and needs a lot of understanding. If the conjoint analysis is designed with too many options for the respondent, he/ she may look for simplification strategies, and therefore the data gathered may lose its importance. (Green, Carroll & Goldberg, 1981)

The reason for selecting the conjoint analysis for this research was based on the fact that in today's world it is becoming impossible for the market players to be able to gain cost competitive and at the same time offer all the features desirable by the customer. (Pullman, More, W.L, & Wardell, 2002). The conjoint analysis survey helps the researcher to gather data based on the preferences of the respondents with attributes that vary with levels. It helps in understanding and better analyzing how the respondent's preferences will be impacted by the changes in the level of attributes on overall preference for the product or service being offered. (Ome, 2002). With the help of this, we will be able to predict the consumer's preference with respect to different combinations of levels. Therefore, the use of conjoint analysis is most suitable to understand and to find out the consumer's preferences with respect to mortgage market with regards to the Turkish housing market.

4.2 Stages of Conjoint Analysis

Commonly there are 7 major steps of conjoint analysis. Researcher has to be very careful at every step while choosing and determining the goals of study because the productive outcomes of conjoint analysis depend on suitable criteria for the research.

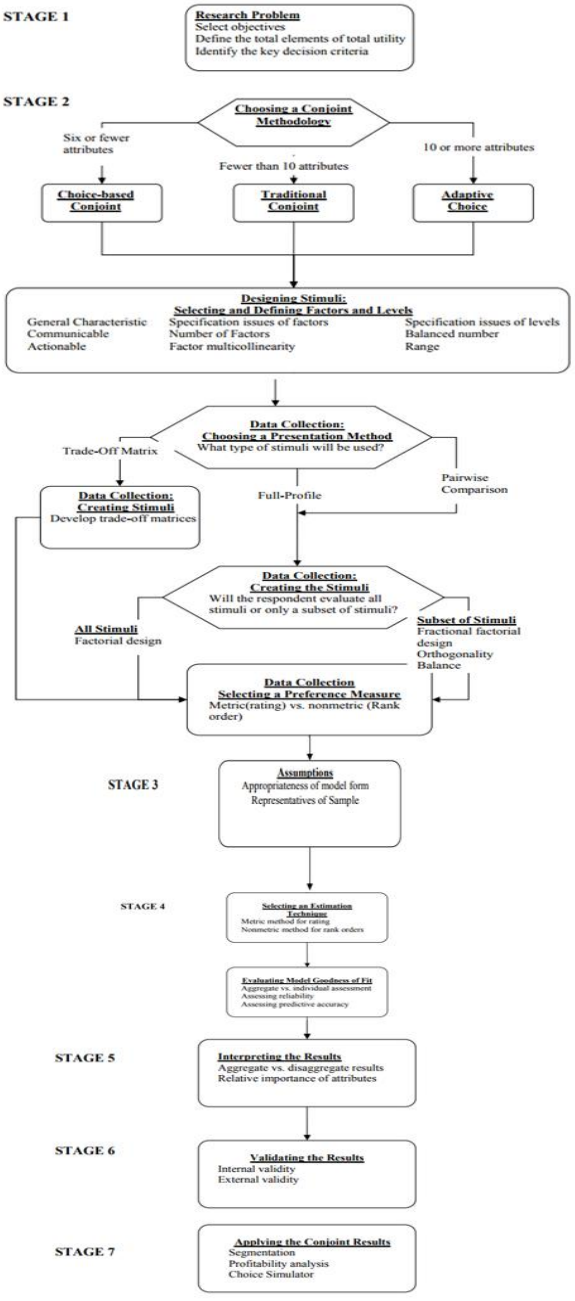

Figure 4.1: Algorithm of Conjoint Analysis

Source: Haier et al, (2006)

The different stages of conjoint analysis are being explained in the below flowchart.Attaining of the main objective of conjoint analysis, knowing consumer preferences and decision criteria has something very important to do with the proper selection of every step and deep consideration of all those factors that may have an effect on the entire study.

4.3 Objective of Conjoint Analysis

Generally speaking, most of the authors and researcher use the conjoint analysis for two basic objectives in order to understand the preferences of the consumers in depth. These two objectives, the primary objectives, of the use of conjoint analysis are as under:

1. To find out the contribution that the independent variables have on the consumer's preference. With respect to this objective, the researcher can easily determine the attributes that are associated with the preferences of the consumers in the respective markets. This allows the researcher and the marketers at most of the cases, to determine the answers to many questions with respect to the preferences of the consumers in their chosen market. An example could be the contribution of the color or the shape of the product on the preference of the consumer to purchase the good. Or which is the most preferred color by the consumers in the market.

2. The second primary objective of conjoint analysis is to find out and to establish a model with regards to the consumer's decision. This is one of the most important objectives that the researcher aims to gain from the use of conjoint analysis. The analysis provides the researcher with the valid and most accurate model that is based on the preferences of the consumer's decision. This preference will be linked to the prediction of the acceptance that any combination of attributes of the selected product will have from the consumer. The model provides the marketer and the researcher with a model that represents the basic relationship between the choice of the respondent and the variables used for prediction.

The objective of using conjoint analysis is to have a quantitative measure to the relatively important attributes of one product over its other attributes. The conjoint analysis provides the researcher to select the features which will be offered to the consumers in form of a new and updates product in the market. It also helps in

setting the prices and to predict the resulting impact on the sales and usage of the new product or the service that they are offering in the market. Conjoint analysis is one of the most popular techniques that is multivariate and is being used widely by the marketers to determine specifically in what way the consumer will respond and develop preferences for the product or service with the selected sets of attributes.

As discussed earlier, the multivariate analysis is the statistical procedure which analyzes a number of measurements of each individual or the object that is being taken for the purpose of research by the researcher simultaneously. However, the conjoint analysis is a little different procedure as it has decomposition nature where it can be performed on one single product with flexibility while considering the level of relationship between the independent and the dependent variables in the research. In general and more particularly, the conjoint analysis will help analysis the new product and service features that would impact the preferences and choice of the consumers at the time to deciding to purchase and use the product. The reason as to why the conjoint analysis has become more popular is due to the fact that the conjoint analysis is more flexible, powerful and is a least expensive mode to address the most important questions in analyzing the behavior of the consumer in any specific market.

4.4 Application of Conjoint Analysis

While selecting the conjoint analysis, the researcher needs to take into consideration a number of factors and criteria. These have been earlier illustrated in the figure 4.1, the algorithm of conjoint analysis. Once the researcher has defined the purpose and objective of the research, the next steps are being discussed as under:

1. Defining the total number of elements of the total utility

The first step that the researcher needs to follow is to define the total utility that is of the selected object. The negative and positive attributes of the product that may have an impact on the utlity of product or service must be included while developing the model for the respondents to choose while making decision. The reason for selecting both negative and positive attributes is that if only positive attributes or only negatiove attributes are included, the decision of the respondent will be deviated and the results obtained from the study would not be realiable and valid.

2. Identifying the criteria for key decision

As illustrated in the figure 4.1, the researcher needs to have the answers to the following questions in order to have critical guidance that is required for making key decisions at every stage of the research. These are defined by Hair et al (2006):

Will it be possible for the researcher to describe each attribute that is associated with the given utlity or the value of the product or the service that is being studied?
What key decision criterias are involved in the entire process of making choice by the consumer with particular importance to the product or service that is being studied?

These questions will enble the researcher to specifically determine the factors that the respondent will consider while making decision with regards to the selected product. The factors that are best for the purpose of the analysis are the ones that can be easily differentiated. Here it is important for the researcher to understand that there could be a number f attributes that can be different but it is not important that all can be differentiated while making choices. The attributes that can easily be differentiated can be the color, price, magnitude that will have most impact on the choice of the consumer in the market.

There is a need of some previous basis in order to select the attributes of the product. There could be some theoretical or survey based justification for determining and selecting the set of attributes for the purpose of research and analysis. These would be used by the researcher to include the variables for their research. (Sclove, 1998)

4.5 Designing the Conjoint Analysis

The next stage is the designing of the conjoint analysis, which is the most important stage in the entire process of conjoint analysis. The questions that the researcher needs to address in this stage include the following, (Hair, 2006)
Which of the conjoint metod must be adopted for the purpose of research? The researcher needs to select between the three methods of conjoint analysis, these will be discussed in the later part of the research.

Design the stimuli for the purpose of composition and designing of the analysis. These needs are to be taken care of as they are important or the successful analysis with the help of conjoint analysis.

What factors and attributes will be selected for the purpose of defining the utility in the entire analysis? How these factors will be composed in the stimuli for the research purpose?

Another important aspect of conjoint analysis is to represent as many relationships in the conjoint variants as possible for defining all the attributes. The effect each has on the model will have an important part in designing the entire conjoint analysis model. Conjoint analysis has two important effects, the main effect, which is the direct effect that would be caused by each attribute and the interaction effect, which is the one which represent some unique effect that the different combinations of the attributes will have. The last point that needs to be taken into consideration is the data collection mode, which is specifically associated with the measurement that will be used the preference of the consumer.

4.6 Conjoint Analysis Methodology Selection

There are three types of methodology from which the researcher can choose in order to conduct the conjoint analysis. These are as follow:

1. Traditional Conjoint Analysis (TCA)

2. Adaptive Conjoint Analysis (ACA)

3. Choice Based Conjoint Analysis

4.6.1 The Traditional Conjoint Analysis

The most commonly used conjoint analysis is the traditional conjoint analysis that is the representation and characterized as a simple model that is additive. The respondent is asked to avaluate the constructed stimuli on the basis of the selected levels of each attribute included in the research. These are also known as the full profile of the selected product. (Hair et al, 2006)

The full profile method is the preferred method in cases where the number of attributes of the product selected for the analysis purpose is six or less than six. (Green & Srivasan, 1990). This conjoint analysis helps in calculating the set of the part worth for every individual on the basis of the full profile card; this could be either based on rating or ranking system, or even a pair wise rating. The analysis allows the researcher to use up to 30 attributes having 15 levels. (Orme, 2003)

4.6.2 Adaptive Conjoint Analysis

The method of adoptive conjoint analysis has been observed to be famous among the researcher and authors in the Europe and US during the 1990s. The reason for being that this method of conjoint analysis is user friendly for both the respondents and the researcher. Apart for this, it is not always suitable to be used in all the cases.

One of the major advantages of using ACA is that it helps in measuring more attributes of the product than any other method. The ACA allows the researcher to include up to 30 attributes. The respondents are not required to evaluate all the attributes of the product at the same time unlike the full profile method and approach. The best part of using this method is that the results of ACA with even few attributes are same as that of the full profile approach. (Orme, 2003)

The ACA is also the method in which the researcher can have main effect model that means that there aren't any interactions between the attributes of the products being used for the purpose of analysis. The limitation of this method is in case the research is based on the pricing studies, as in these studies it is necessary for the researcher to sometimes estimate the sensitivity of the price for the selected nature of study. (Sawtooh Software ACA 5.0. 2002)

4.6.3 The Choice Based Conjoint Analysis

This method for the conjoint analysis was one of the most adoptive methods in the early 1990s and was used most widely all around the world by the researchers and marketer. There are a number of reasons for this method to be the choice of the researchers and its popularity. The preferred product used in the CBC is somewhat similar to what the consumers are actually doing in the selected market place. The main features and characteristics of this analysis that differentiate this method from the others are that the method allow the consumer/respondent to express his

preference while choosing the concepts rather than ranking or rating them. The method also allow the respondent to chose the none option, that is that the respondent has the choice to say that he is not interested in any of the combination of attributes the researcher has chosen. (Green & Sarinavasan, 1990)

The Choice Based conjoint analysis is not suitable for the research which consists of a large number of attributes. The suggested number of attributes for this method of conjoint analysis is between six and ten, as per the full profile concept that has been described in the traditional conjoint analysis method. (Green & Srinavasan, 1990).

The concept of main effect only is one of the assumptions in the most of the conjoint analysis methods. CBC, otherwise, can only measure a two way interaction in the study. The CBC allows the researcher to product the results that are precise. But these can only be so when the total numbers of attributes are few and the interactions between them are of the main concern.

4.7 Selecting the Appropriate Method of Conjoint Analysis

The determination of the most suitable and appropriate method of conjoint analysis is of otmost importance in any of the research where the research needs to carefully select the right method to drive authentic and valid analysis and results of the research. The choice will be based on the total number of attributes that the researcher needs to study and analysed. In case there are more attributes, ACA would be the right choice. If the study requires the researcher to include the interactions between the attributes, the preferred method of the conjoint analysis would be the CBC. Similarly, whem the research is based on small sample size, than the most preferred method would be ACA and the TCA as they provide the researcher to have a more stabilized estimate as compared to the CBC method of conjoint analysis.

The researchers can also adopt more than one method for the purpose of conjoint analysis based on their preferred study. The researcher might even choose to use all the three, TCA, ACA and CBC in the same study to drive the results and perform analysis. (Orme, 2003).

Table 4.1: Criteria for the selection of Conjoint Analysis Methodology

	TCA	CBC	ACA
Six or less attributes	X***	X**	X*
Attributes are six or more			X
Interactions		X	
Sample size is Small	X		X
Utility at individual level	X		X
Choice Task	Evaluation of full profile stimuli one at a time	Choice between the sets of the stimuli	Rating or ranking of the stimuli that contain the subsets of the attributes
Format of Data Collection	Any Format	Any Format	Computer based format

Source: Sawtooth Software, ACA, Hair et al(2006)

*the upper limit of the attributes is 30

** the upper minit of the attributes is 6

*** the upper limit of the attribute is 9

4.8 Types of mortagege and interest rate system offered by Turkish Banks used in the Study

For the purpose of research, the analysis is based on the available options of interest rate, structures of repayments of monthly installment and mortgage types that are offered to the consumers in the Turkish housing market. The types of mortgage and the type of interest payments that are being used in the study include the following:

1. Fixed Rate Mortgage

2. Adjustable Rate Mortgage

3. Decreasing structure of repayment

4. Increasing structure of repayment

5. Balloon Payments

The profiles that will be created for the purpose of gathering data with regards to the preference of the consumers, will be based on the above mentioned mortgage options and the interest rate options that are currently being offered to the consumers in the mortage system being followed in the Turkish Housing Market. These are being explanined as under:

4.8.1 Fixed Rate Mortgage

The fixed rate mortagage (FRM) also known as the vanilla wafer mortgage loan is one of the mortgage loan option that is available for the consumers in the housing fianance system in Turkey. It is that type of mortgage that has a fixed rate of interest that is mentioned on the note and it remains unchange for the entire duration of the loan payments. It is also one of the amortizing mortgage loans available for the consumers in Turkey. This mortgate type fixed the rate of interest and the duration of the loan payments, where the person who has to return the loan amount enjoys the benefits of paying consistant single amount of payment and therefore can plan his budget accordingly based on the fixed cost he has to bear. (Fabozzi & Modiglini, 1992)

The key characteristics of the fixed rate mortgage that is that the:

Fixed loans will have fixed monthly payments depending on the amount that is borrowed by the consumer, the rate of the interest and the total length of time in which the amount of laon along with the total intesest payment amount has to be returned back by the borrower.

The amount that the borrower owes every month will be equal to the amount owed in the previous month plus the interest rate that has to be paid on that amount and minus the fixed amount of montly payments.

The fixed amount of monthly loan is selected to ensure that the loan is paid off in full along with the interest amount at the end of the pre-defined loan payment time duration.

4.8.2 Adjusted Rate Mortgage

The adjusted rate mortgage, also known as the variable rate mortgage or the tracker mortgage, is that type of mortgage loan payment system in which the interest rate that is presented on the note is periodically being adjusted based in the index. This index reflects the cost that the lender has to be paid by the borrower on the markets of credits. (Wiedemer)

The main features of the ARM are as follow: (Mishler, 1995)

The loan has an initial interest rate that is deciding at the beginning of the loan.
The adjusted period of the payment is the length of the time that the interest rate or the period of loan will be based on the ARM schedule that remains unchanged theorugh out the tenure of the loan.
The rate of interest will be reset at the end of every period that is pre decided and the monthly loan payment as a result will be calculated again.
In the ARM, the index rate is the rate by which the interest rate would change during the time of the length of mortgage. The lenders of the laon base this index rate on a number of indices. One of the most common used indexes is the one, three, or five years treasury securities. Another most common used index is the regional or national average cost of funds to the total savings and loan.
The margins in the ARM are the percentage points which are added by the lender to the index rate in order to determine ARM's rate of interest.
The interest rate caps are also used in the ARM that limits the interest rate or the payments that the borrower can pay at the end of every adjusted period.
The ARM also have some initial discounts that allow the lender to offer some concessions are form of promotional aids to the borrower for the first year of the loan. These are used to reduce the rate of interest below the existing rate.

4.8.3 Balloon payment Mortgage

Another mortgage option that the consumers of the Turkish housing finance have is the Balloon payment Mortgage. This type of mortgage is not a fully amortized

mortgage, that is, that the mortgage is not amortized over the total term of the note, which leaves a balance due on the borrower at the time of the maturity. (Wiederer, 8th edition)

The amount that is paid on the final payment time is known as the balloon payment which is named this because of the large size. These times of mortgages are most commonly found in the commercial real estate rather than the residencial real estate. (Fabozzi).

At some time and in some conditions the borrower of the loan does not have the required resources to make the balloon payments at the end of the loan period. In this case the borrower can opt for a two step plan of mortgage that may be used to make the balloon payment of the mortgage. This method is also at times known as the reset option. The resets in this method are based on the current market rates and are used in the full amortization of the payment of the mortgage. (Wiedemer). The option might not be available for the borrower automatically and therefore, the borrower might be required to initiate it. It will only be available of the borrower in case that he has never made late payments in the preceding 12 months of the mortgage period and does not have any property lein on the other lenders.

At time, the balloon payments are confused with the adjusted rate mortgage. The major difference in both the payments will be that balloon payment may require the refinancing or the repayment of the amount at the end of every period and in case of some adjusted rate of mortgage, these cannot be refinanced and the rate if interest will be automatically be adjusted at the end of the applicable period.

4.8 Increasing and decreasing structure of repayment of installments

Borrower can choose the schedule of payment according to his/her fluctuating income. In increasing payment structure smaller amount amounts will be paid and amount will be increased according to determined structure. Decreasing payments starts with big amount and ends up with fewer amounts as decided at the beginning.

4.9 Conceptual Model

The research was conducted on the basis of conjoint analysis which was used for the preliminary research for this study. The research is based on the literature review and the survey conducted by the researcher for the purpose of gathering data regarding the preferences of the consumers in the mortgage market of Turkey. The data was then used to analysis various attributes of the consumers at various levels.

The focus of the conjoint analysis is to the method of decomposition of data that is used for the estimation of the structure of the preferences of the consumers. The consumer's preference is analyzed on the basis of its evaluation of different sets of alternatives which have been pre-specified by the researcher on the basis of different levels of attributes. This provides the researcher with insight to the composition of the preferences of the consumers. (Tripathi and Siddiqui, 2010)

The conceptual model for the research is illustrated in the figure 1 that will help in understanding the complete process that was followed by the researcher in order to gain conclusion of regarding the mortgage market of the Turkish housing market.

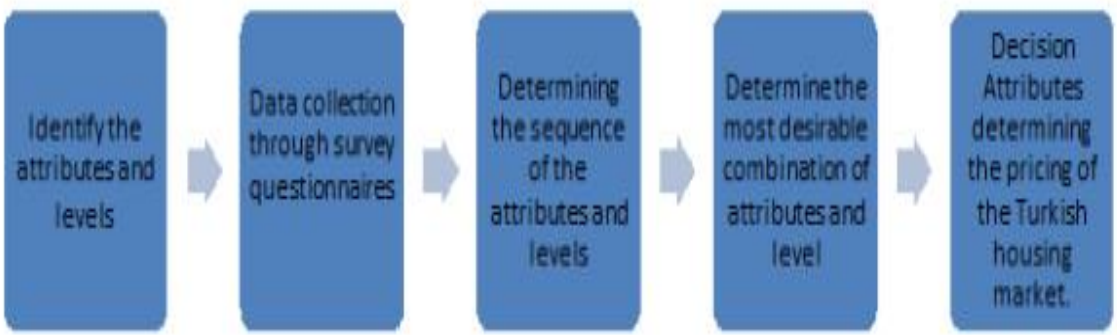

Figure 4.2: Conceptual Model

4.10 Data Preparation for Analysis

In order to conduct conjoint analysis, the first and most important step is the defining of the proper attributes along with the levels for the purpose of research. As discussed earlier, the attribute is defined as the characteristic of the product, and the levels are the different degrees of the characteristics of that specified attribute. (Tripathi & Siddique, 2010). In this research, the attribute and the levels are based on

the factors that are affecting the mortgage choices of the consumers in Turkish housing market and the mortgage system in Turkey. The specified attributes and levels have been derived in the basis of the literature review and the results of the survey conducted with the respondents who are market players. These attributes and levels are defined in the following table.

Table 4.2: Attributes and attribute levels of the conjoint study.

Attributes	Level 1	Level 2	Level 3	Level 4
Types of Mortgage	Fixed rate Mortgage	Adjustable rate Mortgage		
Repayment Structure	Fixed Payments	Increasing Payments	Decreasing Payments	Balloon payment
Length of Mortgage	Less than 5 years	5-10 years	More than 10years	
Approval Speed	Slow	Average	Fast	
Bank Reputation	Average	Good	Very Good	
Easiness of process	Easy	Hard		

The various combinations of these attributes and levels were then formulated in the form of bundles. These Bundles were carefully prepared by the researcher with the help of marketing engineering for excel program. The basic calculations behind the formation of these cards are that these combinations are based on the factors and the levels defined in the above table. That is 2x4x3x3x3x2= 432. This is difficult for the respondent to respond and understand all of these 432 combinations and therefore the combinations have been limited by the researcher taking in account the main factors. The marketing engineering program was hence used to form 16cards based on the

orthogonal plan. These bundles were used to gather the data of the respondent's preferences. The bundles are defined in the following table.

Table 4.3: Attribute levels for a full-profile, fractional design 1 to 8 bundles

Bundle 1	Bundle 2	Bundle 3	Bundle 4	Bundle 5	Bundle 6	Bundle 7	Bundle 8
FRM	ARM	FRM	ARM	FRM	ARM	FRM	ARM
Fixed Payment	Decr. Payment	Fixed Payment	Incr. Paym ent	Fixed Payment	Incr. Payment	Incr. Payment	Incr. Payment
<5 Years	5-10 Years	>10 Years	> 10 Years	<5 Years	5-10 Years	>10 Years	5-10 Years
Slow	Average	Fast	Slow	Average	Slow	Average	Fast
Average	Very Good	Good	Good	Good	Good	Very Good	Average
Easy	Hard	Hard	Hard	Hard	Easy	Easy	Hard

Table 4.4: Attribute levels for a full-profile, fractional design 9 to 16 bundles

Bundle 9	Bundle 10	Bundle 11	Bundle 12	Bundle 13	Bundle 14	Bundle 15	Bundle 16
ARM.	FRM.	ARM.	FRM.	ARM.	FRM.	ARM.	FRM.
Decr. Payment	Decr. Payment	Decr. Payment	Fixed Payment	Balloon Payment	Balloon Payment	Balloon Payment	Balloon Payment
< 5 Years	5-10 Years	>10 Years	5-10 Years	< 5 Years	5-10 Years	>10 Years	5-10 Years

Fast	Average	Slow	Average	Average	Fast	Average	Slow
Very Good	Average	Good	Good	Good	Good	Average	Very Good
Easy	Hard	Hard	Easy	Hard	Easy	Easy	Hard

4.5 Data Collection through Survey Cards

The data was collected by providing the respondents a set of 16 cards. These cards contain important factors of mortgage with their different levels which were explained in these cards. The levels were specifically designed to demonstrate their influence on a customer while they decide to select the appropriate bundle for themselves while deciding to choose between mortgage options. The respondents were asked to rate each card acceding to their preference , 1 being the card with the options that are most preferred by the respondent and 16^{th} being the least preferable combination by the respondents.

This data was provided to the respondents to gather their response based on the 16 generated cards. These cards are as follow

Table 4.5: Conjoint analysis cards 1 to 4 for respondent ratings.

Attributes	Card 1	Card 2	Card 3	Card 4
Type of mortgage	FRM.	ARM.	FRM.	ARM.
Repayments Structure	Fixed Payments	Decreasing Payments	Fixed Payments	Increasing Payments
Length of Mortgage	<5 Years	5-10 Years	>10 Years	>10 Years
Approval speed	Slow	Average	Fast	Slow
Bank Reputation	Average	Very Good	Good	Good
Easiness of	Easy	Hard	Hard	Hard

Process				
	Respondents' Rating=	Respondents' Rating=	Respondents' Rating=	Respondents' Rating=

Table 4.6: Conjoint analysis cards 4 to 8 for respondent ratings

Attributes	Card 5	Card 6	Card 7	Card 8
Type of mortgage	FRM.	ARM.	FRM.	ARM.
Repayment Structure	Fixed Payments	Increasing Payments	Increasing Payments	Increasing Payments
Length of Mortgage	<5 Years	5-10 Years	>10 Years	5-10 Years
Approval speed	Average	Slow	Average	Fast
Bank Reputation	Good	Good	Very Good	Average
Easiness of Process	Hard	Easy	Easy	Hard
	Respondents' Rating=	Respondents' Rating=	Respondents' Rating=	Respondents' Rating=

Table 4.7: Conjoint analysis cards 9 to 12 for respondent ratings.

Attributes	Card 9	Card 10	Card 11	Card 12
Type of Mortgage	ARM.	FRM.	ARM.	FRM.
Repayment Structure	Decreasing Payments	Decreasing Payments	Decreasing Payments	Fixed Payments
Length of Mortgage	< 5 Years	5-10 Years	>10 Years	5-10 Years
Speed OF approval	Fast	Average	Slow	Average
Bank Reputation	Very Good	Average	Good	Good
Easiness of Process	Easy	Hard	Hard	Easy

	Respondents' Rating=	Respondents' Rating=	Respondents' Rating=	Respondents' Rating=

Table 4.8: Conjoint analysis cards 13 to 16 for respondent ratings.

Attributes	Card 13	Card 14	Card 15	Card 16
Type of Mortgage	ARM.	FRM.	ARM.	FRM.
Repayment Structure	Balloon Payment	Balloon Payment	Balloon Payment	Balloon Payment
Length of Mortgage	< 5 Years	5-10 Years	>10 Years	5-10 Years
Speed of Approval	Average	Fast	Average	Slow
Bank Reputation	Good	Good	Average	Very Good
Easiness of Process	Hard	Easy	Easy	Hard
	Respondents' Rating=	Respondents' Rating=	Respondents' Rating=	Respondents' Rating=

The data which was collected with the help of survey questionnaire, which was given to the respondents who were involved in the mortgage and housing market of Turkey in order to study and analyze their preferences for the selected factors, was gathered in form of a table. The respondents were provided with a questionnaires which included these bundles which were designed in a way that the respondents had to rate each bundle. The sample of respondent's ratings is illustrated in the table.

Table 4.9: Respondents Rating.

Respondents' Ratings																
Respondents' ratings for each bundle (use consistent scale, e.g., between 0 and 100)																
	BUNDLE															
Respondents / Ratings	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
1																
2																
3																
4																
5																

4.6 Chapter Summary

The chapter includes the methodology that was used in designing and analyzing the research objective. For the purpose of data gathering and analysis, the conjoint analysis was used in order to gather data that would help in analyzing the consumer's preferences in the mortgage and housing market of Turkey. The main reason of using the conjoint analysis for the research was to be able to analyze and conclude various options and combinations of attributes and levels that the consumers consider while deciding which mortgagee option to avail. The analysis also was useful in determining the impact of various factors including mortgage rate and the rate of interest on the overall pricing of the housing sector in the Turkish market.

A survey based on ranking cards was used for the purpose of gathering data from the respondents. Each card had a set of attributes and levels carefully designed to study the preference of the consumer. The respondents were asked to rate each card from 1 to 16, with 1 being the most preferred attribute and combination and 16 being the least preferred combination of attributes and levels. The data gathered through the responses of the respondents was carefully analyzed by the researcher. The analysis and conclusions are in the later chapters of the study.

5. ANALYSIS AND RESULTS

For the purpose of analysis of the research, conjoint analysis was used to find the consumer's preference with regards to the mortgage system and option available for the customers of the Turkish housing market. The reason for using the conjoint analysis for this research was that the conjoint analysis provides with the best results for the market players to know the preferences and the levels of attributes that the consumer prefer while deciding to purchase the commodity in the specific market.

5.1 Data Analysis

The Conjoint analysis was performed on the data collected through the respondents. The Marketing engineering for excel software was used by the researcher to create orthogonal arrangements for the data. It created 16 different cards on the basis of orthogonal layout which was held on the combination of the consumer's preference with regards to the options available in the mortgage system in the Turkish housing market. The 16 cards were chosen for the purpose of gathering data from the consumers of the Turkish housing market based on the interviews. For the purpose of determining the results, the marketing engineering was used form the Microsoft Excel software. The software was used to find out the 16 cards ranking that was generated on the basis of the data collected through the response of the respondents. These were entered in the Marketing Engineering of the Excel for the purpose of calculations. The way it was calculated was based on ranking system, where if the respondent response put the card in the 1^{st} position, it was calculated as the most preferred one and 16^{th} ranking is the least one.

The results that were obtained from the conjoint analysis performed in the data set from the responses of the respondents are as follow:

Table 5.1: Conjoint Study Design

Attributes	Level 1	Level 2	Level 3	Level 4
Types of Mortgage	Fixed rate Mortgage	Adjustable rate Mortgage		
Repayment Structure	Fixed Payments	Increasing Payments	Decreasing Payments	Balloon Payments
Length of Mortgage	Less than 5 years	5-10 years	More than 10years	
Approval speed	Slow	Average	Fast	
Bank Reputation	Average	Good	Very Good	
Easiness of Process	Easy	Hard		

Table above shows the attributes and levels of this study. 16 bundles were created by the software in order to get the preferences of consumer. Results of 100 respondents were put to software. The pathway that was created with the help of the conjoint analysis, based on the responses of the respondents is as follow

Table 5.2: Respondent's Preference Pathway

Respondents' Preference PartworthsSS																	
Respondents' preference partworths.																	
The most preferred profiles sum up to 100, the least preferred to 0.																	
Respondents / Attributes and Levels	FRM	ARM	FR	IR	DR	BP	>5YR	5-10YR	<10 YR	Slow	AV-F	Fast	AV	G	V.G	Easy	Hard
Res 1	0	42	0	13	11	13	16	3	0	11	0	5	12	5	0	0	7
Res 2	43	0	11	0	11	21	0	13	5	0	12	3	0	6	9	1	0
Res 3	0	45	10	15	0	8	11	14	0	16	0	20	0	0	6	0	0
Res 4	0	41	0	5	19	19	5	11	0	11	0	11	0	12	14	0	5
Res 5	0	29	0	12	19	7	0	25	11	1	2	0	15	4	0	0	9
Res 6	0	29	37	49	51	0	0	7	3	1	0	4	0	6	0	0	3
Res 7	13	0	56	0	56	22	0	3	4	0	12	4	15	9	0	0	0
Res 8	0	45	0	6	20	20	8	10	0	0	0	6	0	10	14	0	6
Res 9	0	19	35	39	42	0	0	9	6	14	0	8	0	8	13	0	2
Res 10	0	18	38	33	36	0	0	10	2	1	0	12	0	11	19	3	0
Res 11	0	45	0	6	24	21	6	6	0	11	0	15	0	4	3	0	6
Res 12	0	22	0	14	12	41	0	19	6	3	0	10	5	5	0	0	3
Res 13	6	0	39	37	44	0	25	20	0	0	10	5	7	0	2	8	0
Res 14	0	36	7	0	19	12	0	7	13	0	18	7	0	6	9	0	4
Res 15	22	0	33	44	46	0	4	0	3	0	15	6	9	0	1	4	0
Res 16	0	23	0	7	18	48	0	9	6	4	0	11	0	2	5	4	0
Res 17	0	22	0	7	18	48	0	9	2	8	0	9	0	7	10	0	2
Res 18	0	52	3	0	2	2	26	0	26	0	4	5	13	7	0	0	0
Res 19	43	0	0	16	12	20	7	0	9	0	11	9	11	0	2	0	4
Res 20	0	44	0	8	15	4	0	25	17	4	1	0	6	6	0	0	6
Res 21	50	0	36	26	12	0	3	2	0	0	4	5	0	5	2	0	2
Res 22	44	0	5	0	15	7	5	0	11	0	20	4	5	5	0	5	0
Res 23	28	0	26	33	16	0	0	11	7	5	19	0	6	4	0	4	0

Res 24	0	12	30	37	48	0	0	8	2	7	0	10	0	13	17	5	0
Res 25	0	42	0	9	12	3	0	23	9	11	0	8	12	6	0	0	0
Res 26	52	0	5	5	0	10	0	26	0	2	9	0	0	2	2	2	0
Res 27	0	37	6	14	10	0	0	2	17	8	1	0	11	0	7	0	13
Res 28	34	0	0	14	10	1	0	5	1	0	18	22	25	3	0	0	0
Res 29	24	0	33	5	0	0	0	0	9	0	20	2	0	5	13	0	1
Res 30	0	23	0	8	4	45	0	11	8	10	0	8	0	4	3	0	8
Res 31	47	0	26	29	15	0	0	6	6	0	7	9	4	0	5	0	4
Res 32	43	0	22	0	16	16	0	11	11	0	16	11	0	3	4	0	4
Res 33	26	0	8	0	12	48	0	3	5	0	18	7	3	0	3	0	0
Res 34	0	50	5	5	0	3	0	8	9	12	0	17	0	11	16	3	0
Res 35	0	47	0	0	12	24	12	0	0	9	0	3	2	0	7	1	0
Res 36	0	21	30	39	55	0	0	8	4	3	0	8	0	4	6	2	0
Res 37	0	27	11	5	0	48	0	1	3	13	0	8	1	2	0	0	7
Res 38	44	0	6	0	7	26	0	11	6	1	10	0	0	2	7	1	0
Res 39	0	43	14	19	0	11	0	12	3	15	0	12	0	3	9	1	0
Res 40	42	0	0	3	9	4	3	17	0	3	0	10	0	7	17	4	0
Res 41	0	48	1	4	6	0	30	0	18	0	4	4	9	1	0	3	0
Res 42	44	0	17	0	7	21	0	18	3	0	8	1	3	7	0	3	0
Res 43	49	0	0	6	3	3	25	0	25	0	14	9	6	3	0	0	0
Res 44	0	45	21	24	23	0	14	0	9	11	0	9	3	1	0	3	0
Res 45	46	0	0	3	7	19	0	13	3	0	14	1	6	6	0	3	0
Res 46	60	0	17	2	0	11	0	17	11	2	3	0	0	2	4	0	0
Res 47	21	0	44	37	37	0	1	0	2	0	14	6	0	7	16	2	0
Res 48	19	0	12	0	4	36	2	0	11	0	18	12	8	7	0	0	8
Res 49	0	27	0	0	0	44	5	0	5	18	0	15	0	3	4	1	0
Res 50	29	0	39	49	50	0	2	0	1	0	11	7	5	0	4	3	0
Res 51	0	3	56	49	26	0	1	7	0	1	2	0	1	0	18	14	0
Res 52	29	0	39	49	50	0	2	0	1	0	11	7	5	0	4	3	0
Res 53	43	0	11	0	11	22	0	14	5	0	11	0	0	6	9	1	0
Res 54	0	43	0	15	9	13	15	1	0	11	0	5	9	1	0	0	8
Res 55	0	45	11	15	0	7	13	13	0	18	0	19	0	1	4	3	0
Res 56	0	29	0	12	19	7	0	24	8	4	3	0	16	4	0	0	8
Res 57	0	33	37	51	54	0	0	6	0	2	0	1	3	5	0	0	0
Res 58	14	0	58	0	58	23	0	4	3	0	9	0	14	4	0	0	0
Res 59	0	46	0	12	19	22	6	6	0	2	0	6	0	9	16	0	4
Res 60	0	19	33	41	42	0	0	10	8	15	0	11	0	2	10	0	4
Res 61	0	18	38	34	36	0	0	10	2	2	0	11	0	10	20	2	0
Res 62	0	45	0	8	25	23	3	4	0	8	0	14	0	6	6	0	6
Res 63	0	23	0	17	11	40	0	18	2	4	0	9	6	2	0	0	3
Res 64	5	0	41	37	45	0	27	23	0	0	5	0	7	0	1	10	0
Res 65	8	0	39	38	44	0	24	18	0	0	9	6	7	0	1	8	0
Res 66	0	36	10	0	21	14	0	6	15	0	16	7	0	4	8	0	4
Res 67	23	0	34	46	50	0	4	0	1	0	15	8	7	0	6	1	0
Res 68	0	22	0	5	17	47	0	10	5	6	0	14	0	0	5	2	0
Res 69	0	21	0	8	17	46	0	10	4	8	0	9	0	5	8	0	5
Res 70	0	51	3	0	2	2	27	0	24	0	2	2	14	6	0	2	0
Res 71	43	0	0	15	9	19	9	0	10	0	12	8	13	0	6	0	3
Res 72	0	47	0	4	10	3	0	27	16	3	0	3	7	2	0	0	6

Res 73	49	0	35	26	12	0	9	5	0	2	2	0	2	2	0	2	0
Res 74	43	0	1	0	13	7	2	0	11	0	17	3	7	10	0	5	0
Res 75	26	0	24	34	15	0	0	10	7	2	17	0	5	7	0	5	0
Res 76	52	0	5	2	0	7	0	26	0	5	11	0	2	0	1	2	0
Res 77	0	38	10	14	12	0	0	3	16	7	2	0	11	0	7	0	14
Res 78	36	0	0	16	13	3	0	3	4	0	16	20	25	3	0	0	0
Res 79	24	0	34	4	0	0	0	1	12	0	18	1	0	6	12	0	0
Res 80	0	21	0	6	5	43	0	15	10	6	0	9	0	6	4	0	6
Res 81	46	0	26	29	14	0	0	7	9	0	4	9	4	0	1	0	3
Res 82	43	0	20	0	18	16	0	11	9	0	16	7	0	3	5	0	4
Res 83	20	0	8	0	3	47	0	0	6	0	12	3	4	0	9	0	6
Res 84	0	50	5	5	0	3	0	9	13	12	0	17	0	11	16	0	0
Res 85	0	47	0	4	15	28	13	2	0	8	0	1	3	0	3	1	0
Res 86	0	20	31	37	55	0	0	9	6	4	0	10	0	6	2	1	0
Res 87	0	28	10	7	0	50	0	1	3	13	0	6	1	2	0	0	4
Res 88	46	0	1	0	3	24	0	12	4	0	10	3	0	1	4	3	0
Res 89	0	44	12	21	0	11	0	11	0	13	0	12	0	3	10	1	0
Res 90	44	0	0	0	8	3	0	16	0	7	0	10	0	3	16	5	0
Res 91	0	50	2	2	3	0	31	0	19	0	5	2	9	0	1	0	2
Res 92	42	0	19	0	9	20	1	18	0	0	9	3	3	7	0	4	0
Res 93	49	0	0	9	5	5	23	0	26	0	10	5	5	1	0	2	0
Res 94	0	46	20	26	23	0	13	0	10	12	0	6	1	2	0	0	1
Res 95	44	0	0	0	6	17	0	14	6	0	14	0	6	8	0	3	0
Res 96	52	0	21	5	0	13	0	15	10	0	4	5	0	1	5	0	2
Res 97	19	0	12	0	2	34	0	2	13	0	18	12	7	8	0	0	9
Res 98	20	0	41	36	35	0	0	2	6	0	15	7	0	4	15	2	0
Res 99	0	27	0	0	0	44	4	0	7	16	0	16	0	1	3	3	0
Res 100	27	0	38	46	46	0	1	0	4	0	11	5	3	0	5	7	0

Table 5.3: Market Share Simulation

Scenario/ Product Profiles	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13	P 14	P 15	P 16
Predicted Market Share	2 %	2 %	6 %	0 %	1 %	6 %	10 %	7 %	11 %	8 %	8 %	6 %	11 %	10 %	6 %	6 %

According to the conjoint analysis, and in the light of 100 respondents' responses the market share prediction for all the 16 profiles that were provided to the respondents have the predicted market share as per the above table. The market scenario or the product profiles according to the preferences of the consumers are being discussed in the above table, where the maximum share of the market is for the profile 9 and P13. And P4 has zero preference, As a result, software created 5 combinations those are based on the most preferred attribute and level and possibly can capture the maximum market share in the presence of existing product profile. Those optimal products and their possible market share will be discussed in results with help of graph provided by software.

Table 5.4: Market Share

Scenario / Product Profiles	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**	**P9**	**P10**	**P11**	**P12**	**P13**	**P14**	**P15**	**P16**	**Market Share**
Predicted Market Share	2%	2%	6%	0%	1%	6%	10%	7%	11%	8%	8%	6%	11%	10%	6%	6%	N/A
Product 1	2%	2%	6%	0%	1%	6%	10%	5%	10%	8%	8%	6%	0%	9%	1%	6%	21%
Product 2	2%	2%	6%	0%	1%	6%	10%	5%	10%	8%	80%	6%	0%	9%	1%	6%	21%
Product 3	2%	2%	6%	0%	1%	6%	10%	6%	6%	8%	8%	6%	2%	9%	3%	65	20%
Product 4	2%	2%	6%	0%	1%	4%	10%	6%	6%	8%	8%	6%	4%	9%	3%	65	19%
Product 5	2%	2%	6%	0%	1%	5%	10%	6%	8%	8%	8%	6%	3%	9%	3%	6%	18%

After considering the results of hundred respondents those five optimal products were created containing the favorable attribute and level. In the table no 5.2 above those optimal products were tested maximum market share were captured in the existing profile. Five optimal products and their attributes and levels are explained in table no 5.3.

Table 5.5: Optimal product profile

Attributes/ Optimal Product Profiles	**Optimal Product 1**	**Optimal Product 2**	**Optimal Product 3**	**Optimal Product 4**	**Optimal Product 5**
Types of Mortgage	Adjusted rate mortgage	Adjusted rate mortgage	Adjusted rate mortgage	Adjusted rate mortgage	Adjusted rate mortgage
Interest Rate	Balloon Payment	Balloon Payment	Balloon Payment	Balloon Payment	Balloon Payment
Length of Mortgage	Less than 5 Years	Less than 5 Years	Less than 5 Years	5-10 years	5-10 years
Approval Speed	Fast	Fast	Fast	Fast	Slow
Bank Reputation	Average	Good	Very Good	Very Good	Very Good
Easiness of Process	Hard	Hard	Hard	Hard	Hard

5.2 Results

These results can easily be understood with the help of the following graphs. These graphs illustrate the product preference of the consumers in the mortgage market depending on their choices of the combination of attributes and their levels that are prevailing in the Turkish Markets. Each optimal product's preferences from the point of view of the consumer is being illustrated in the following part of the research based on the data that was gathered from the consumers who are looking for mortgage options in the housing markets of Turkey.

5.2.1. Predicted Market Share

The following graph illustrates the predicted market share of the mortgage option profiles that were created for the purpose of analysis.

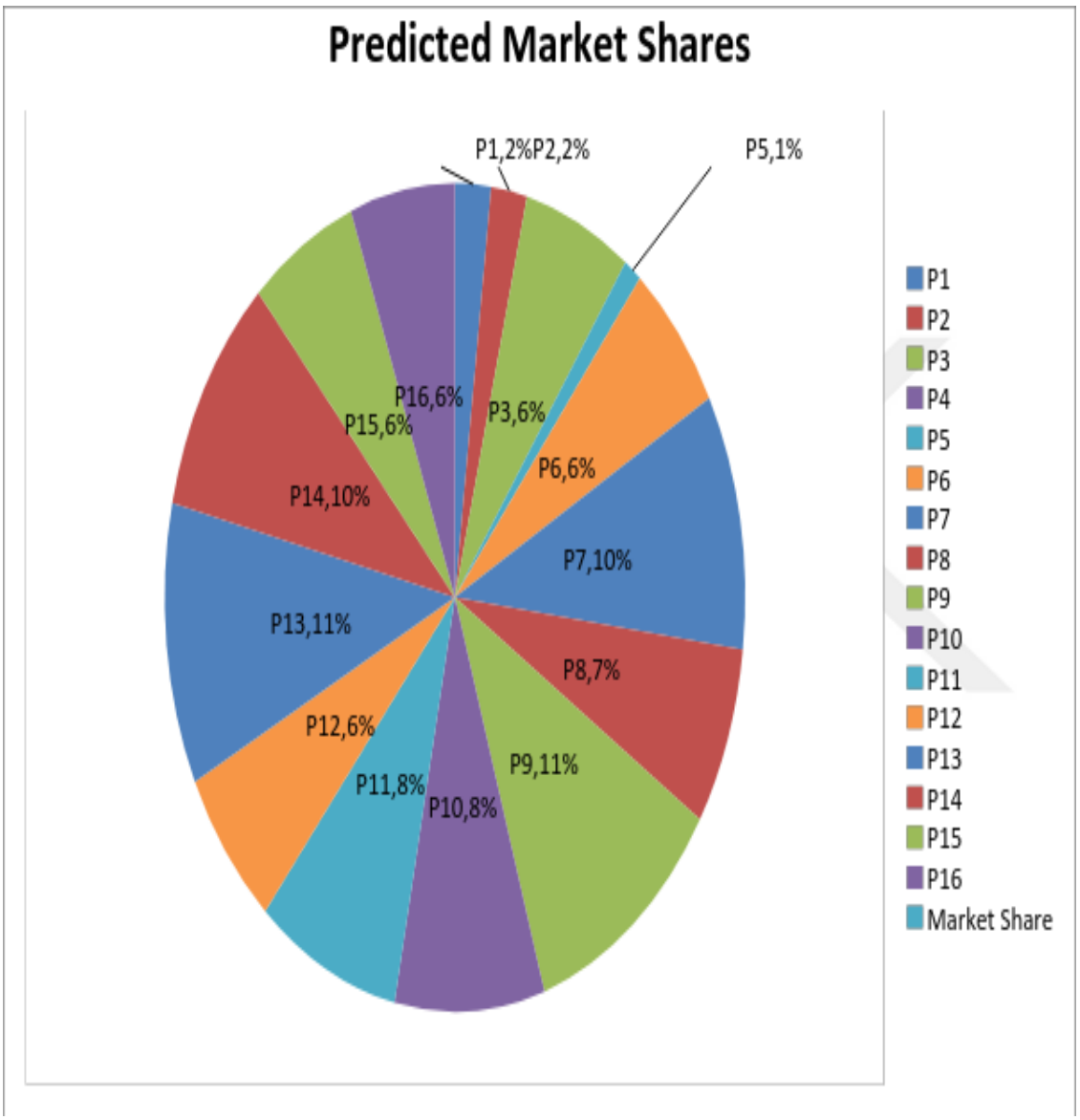

Figure: 5.1: Predicted Market Share

The above graph regarding the predicted market share as drived with the help of the conjoint analysis, shows that the product profile P13 and P9 will be the most preferred profile among the consumers in the mortgage market of Turkey, whereas, the least preferred is the product profile P4 and P5. The P13 that is most preferred by

the consumers represent the combination in which consumers would want to have the mortgage option that offers adjustable rate of mortgage along with balloon payments as the repayment structure for a period of less than 5 years, with the speed of approval being average of a good reputed bank. Along with this option, the consumers will also opt for an option where the mortgage type is adjustable rate of mortgage with decreasing structure of payment for less than 5 years, with fast speed of approval and bank reputation being very good. Whereas, the least preferred options from the preference of the consumers is the one where the mortgage is adjustable rate with fixed Payments structure and having a length of more than 10 years along with a slow approval time and with good bank reputation but with easiness of process being hard. People also do not prefer fixed mortgage rate with fixed structure of payment that is for a period less than 5 years and approval time being average with a good reputed bank and hard process for the entire mortgage system.

5.2.2 Results for Optimal Product 1

The results that were obtained based on consumers preferences of the mortgage combinations based on the optimal product 1 are being illustrated in the following graph that shows the possibility of generated optimal product, which is given a name optimal product 1.and showed in table above that consists of adjustable mortgage with decreasing structure of repayment, less than 5 year duration with fast approval speed from a average reputed bank and hard process.

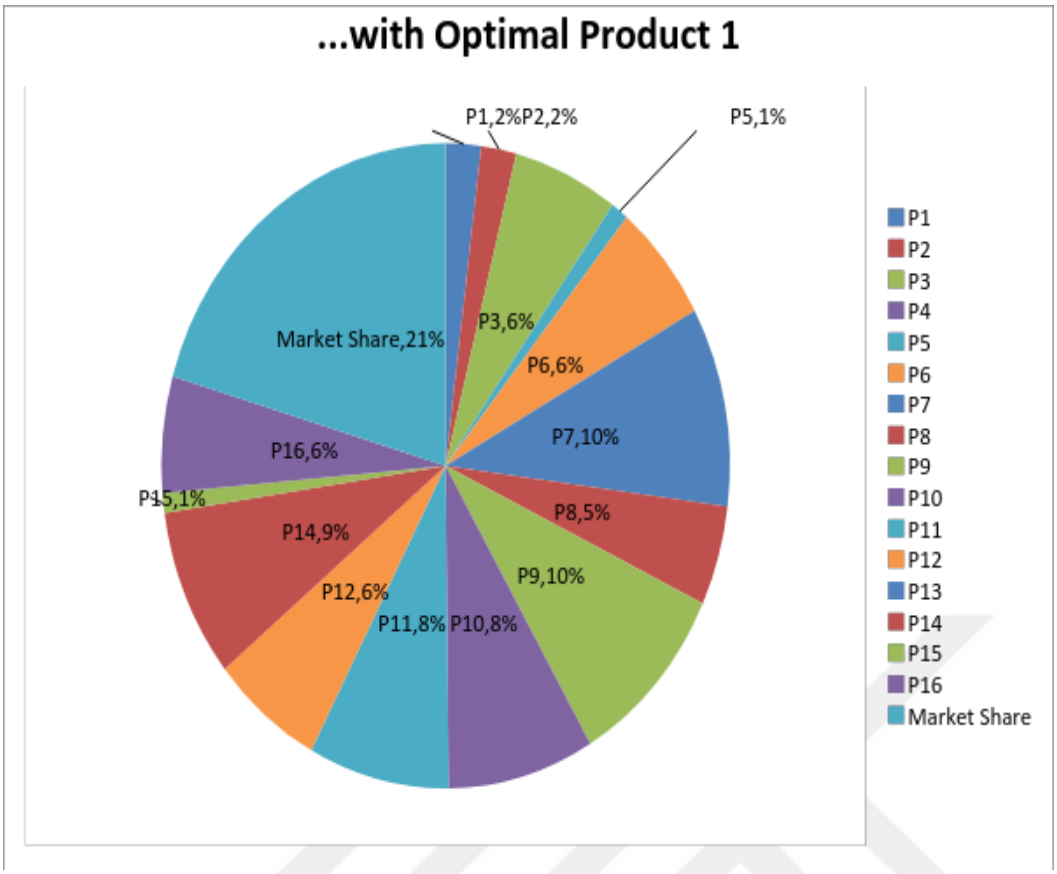

Figure: 5.2 Optimal Product 1

The result of the optimal product 1 shows that the predicted market share with the optimal product 1 will be 21% in the overall mortgage market of Turkey, where P7 and P10 will have the maximum and the P13 being the choice and preference of none of the consumers. In this optimal product, the consumers would want to, and prefer the mortage option that is that is fixed rate mortgage with increasing structure of repayment and that too with a length of more than 10 years with the bank who has good reputation in the market and would have average time for approval with very good reputation and easiness of the entire mortgage process being easy. The consumer would also prefer to go for the mortgage combination that have fixed rate and decreasing structure of repayment with a time duration go 5 to 10 years and having an average approval time with an average bank that has hard process. However, in the even optimal product, the consumers would not prefer to go for the option that offer adjustable rate with increasing structure of payment and having a length of more than 10 years along with slow approval time and with good bank reputation and hard process.

5.2.3. Results of Optimal Product 2

The results that where obtained based on consumers preferences of the mortgage combinations based on the optimal product 2 are being illustrated in the following graph.

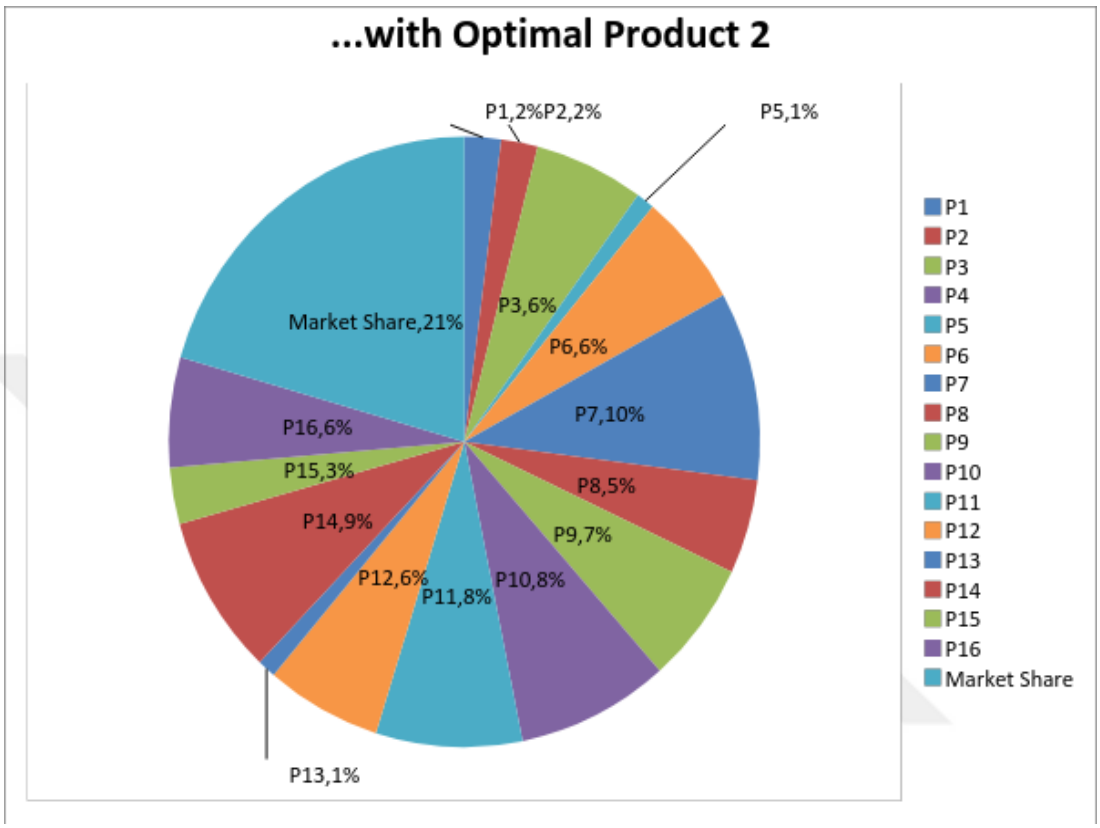

Figure: 5.3: Results of Optimal Product 2

The optimal product profile 2 will have the predicted market share of 21% according to the conjoint analysis. Where the most preferred product profile among the consumers of the mortgage system will be P7 and the least preferred would be P4 with no consumers opting for this option in the market**.** For the given optimal product, the consumers would want to, and prefer the mortage option that is that is fixed rate mortgage with increasing structure of repayment and that too with a length of more than 10 years with the bank who has very good reputation in the market and would have averge time for approval with good easiness of the entire mortgage process. Whereas, the consumer would no prefer a mortgage option that has adjusted rate and a increasing structure of repayment with the total length of the mortgage being more than 10 years with slow approval speed that too with a bank having a good reputation in the market and hard process of the entire mortgage.

5.2.4. Results of Optimal Product 3

The results that were obtained based on consumers preferences of the mortgage combinations based on the optimal product 3 are being illustrated in the following graph.

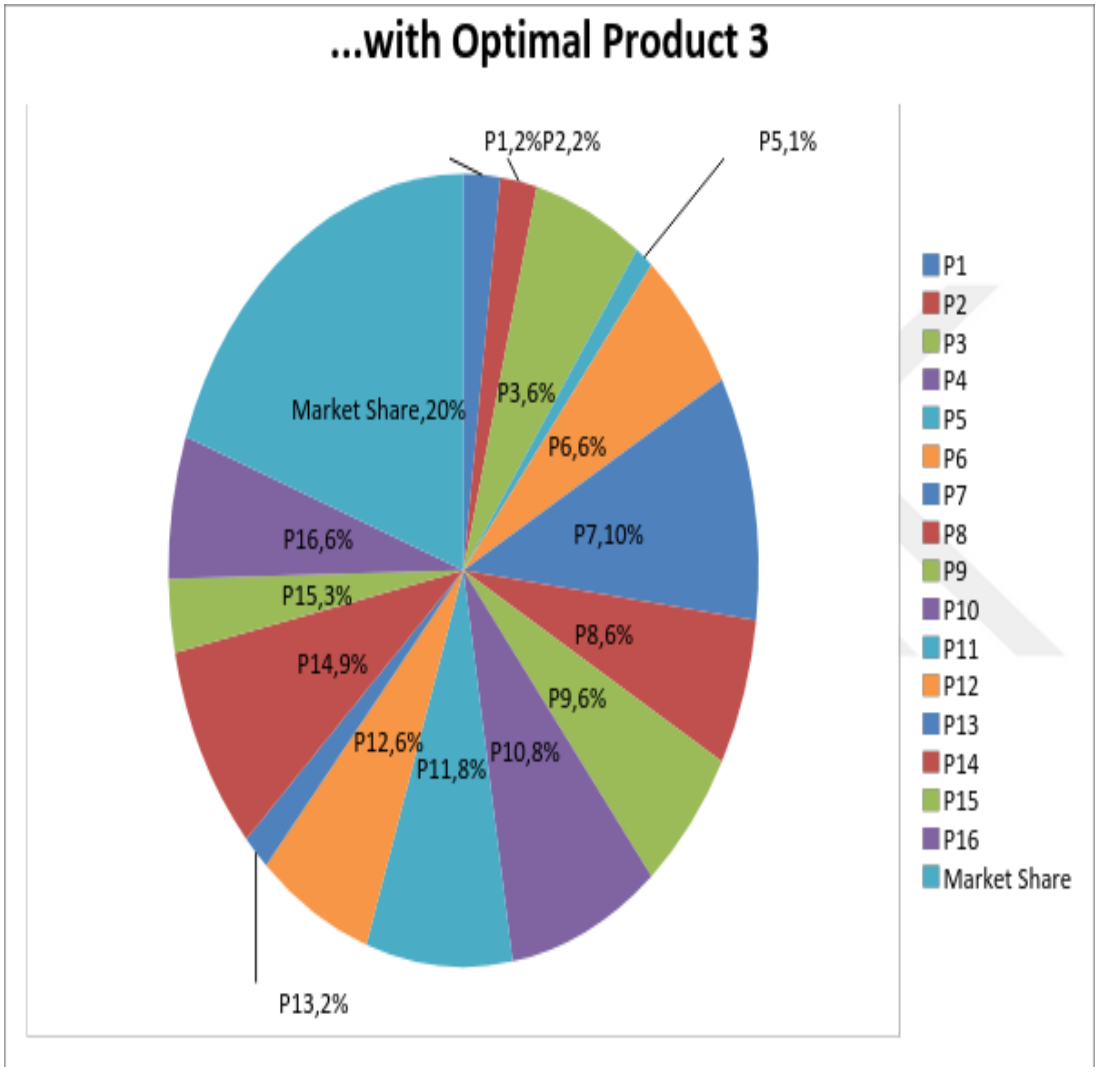

Figure 5.4: Results of Optimal product 3

The result of the optimal product 3 shows that the predicted market share with the optimal product 3 will be 20% in the overall mortgage market , where P7 will have the maximum and the P4 being the choice and preference of none of the consumers. And P 5 has the least preferred one just 01 % of market. The optimal product 3 will have consumers who would want to, and prefer the mortage option that is adjustable rate mortgage with balloon payments structure and that too with a length of 5-10

years with the bank who has very good reputation in the market and would have fast time for approval with good reputation and hard process of the entire mortgage process. Having this optimal combination 20% of market is supposed to be captured. While in the presence of this optimal product the second most favorable combination P7, that possesses a combination of fixed rate mortgage with increasing structure of repayment and more than 10 year duration with average approval speed and easy process by a bank having Very good reputation Whereas, the consumer would least prefer a mortgage option that is P5 with 01%, has fixed rate and a fixed structure of repayment with the total length of the mortgage being less than 5 years with an average approval speed that too with a bank having a good reputation in the market and hard process of the entire mortgage.

5.2.5. Results of Optimal Product 4

The results that were obtained, based on consumer's preferences of the mortgage combinations are being illustrated. Those possible results are given a name as optimal product .4. The Optimal product 4 is designed by software in the light of hundreds respondents. This combination may be able to capture the bigger market share in the present product profile.

Following graph expresses the results for optimal product 4 and identifies the possible market share.

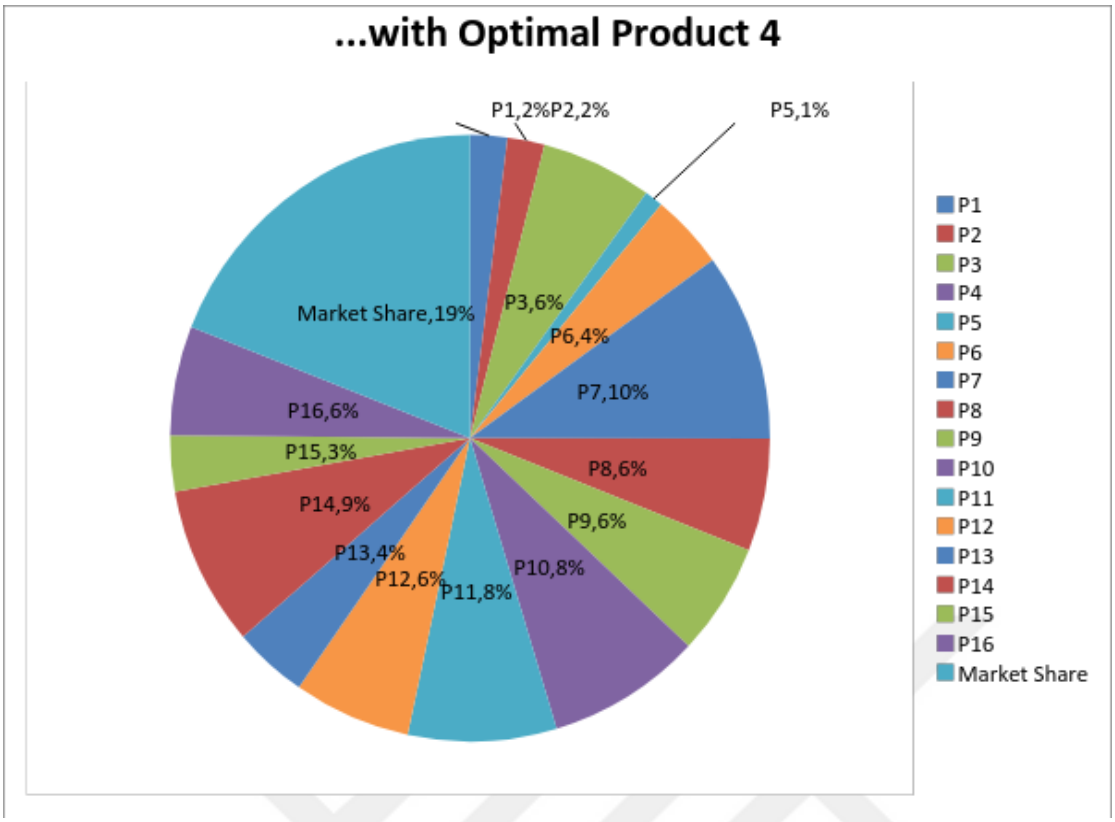

Figure 5.5: Results of Optimal product 4

The optimal product profile 4 will have the predicted market share of 19% according to the conjoint analysis. Where the most preferred product profile among the consumers of the mortgage system in Turkey will be P7 and the least preferred would be P4 with no consumers opting for this option in the market while P1 has only 02 % of market. The consumers would want to, and prefer the mortage option that is that is fixed rate mortgage with increasing structure of payment and that too with a length of more than 10 years with the bank who has very good reputation in the market and would have averge time for approval with easiness of the entire mortgage process. Whereas, the only 02% consumer would prefer a mortgage option that has fixed rate mortgage and a fixed rate and fixed schedule of repayments of monthly installment with the total length of the mortgage being less than 5 years with slow approval speed with a bank having average reputation in the market and easy process of the entire mortgage.

5.2.6. Results of the Optimal Product 5

The results that where obtained based on consumers preferences of the mortgage combinations in the presence of optimal product 5 are being illustrated in the following graph.

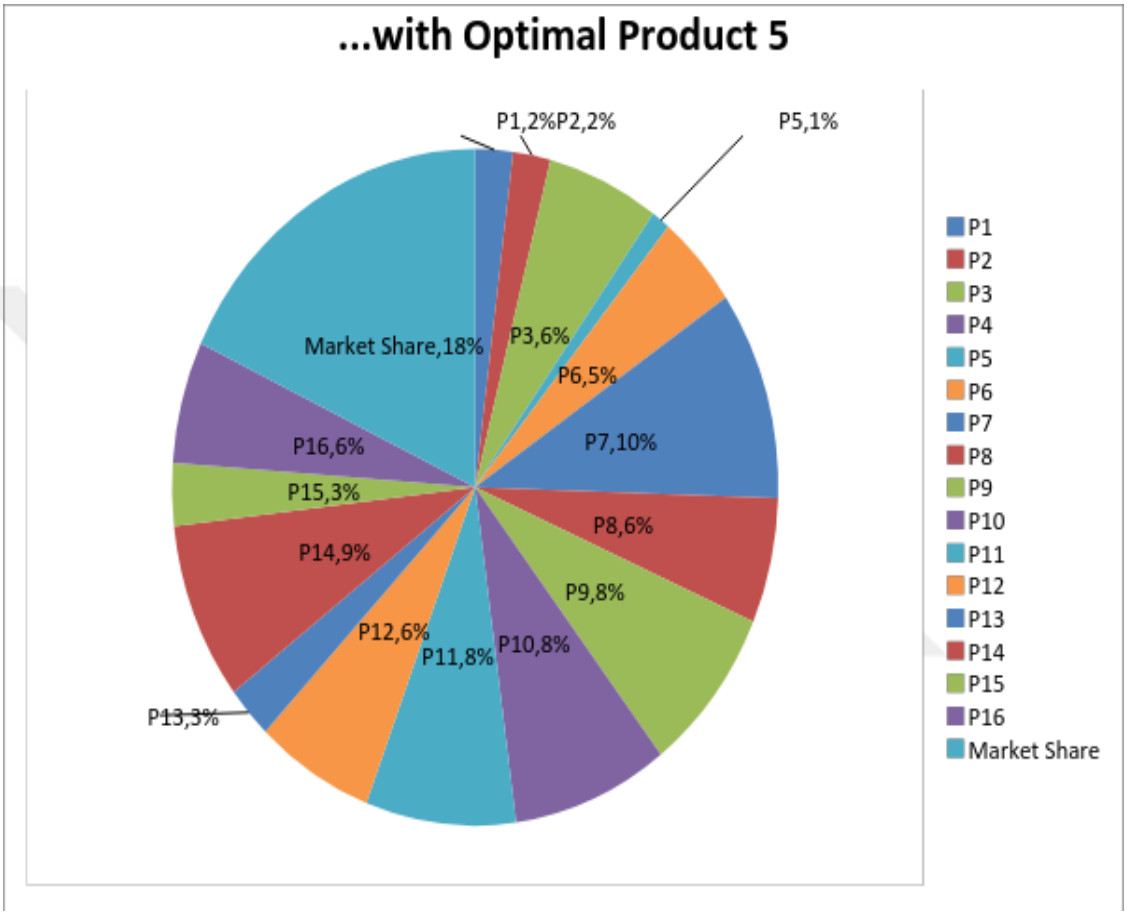

Figure 5.6: Results of Optimal product 5

The optimal product profile 5 will have the predicted market share of 18% according to the conjoint analysis. Where the most preferred product profile among the consumers of the mortgage system in Turkey will be P7 and the least preferred would be P5 with 01% consumers opting for this option in the market**.** The consumers would want to, and prefer the mortage option that is fixed rate mortgage with increasing schedule for repayment with a length of more than 10 years with the bank who has very good reputation in the market and would have average time for approval and easiness of the entire mortgage process. Whereas, 01% consumers would prefer a mortgage option that has fixed rate and fixed monthly repayment

schedule with the total length of the mortgage being less than 5 years with an average approval speed that too with a bank having a good reputation in the market and hard process of the entire mortgage.

6. CONCLUSION

The conjoint analysis was used to find out the set of attributes and their combinations which were preferred by the consumers in the Turkish housing market while deciding to choose the mortgage option in the market. The conjoint analysis was used for the research analysis purpose as it provides the best results and analysis with regards to the preferences of the consumers based on the attribute and the level of these attributes. The conjoint analysis provides with an in depth information regarding the preference levels in the market, enabling the marketing professionals to make decisions and predictions regarding the sales of their products in their specific market. The Turkish housing market also has a number of mortgage options available for the consumers to choose from while deciding to take mortgage.

A through research was conducted on the housing market of the Turkey and the mortgage structure and options that are available for the consumers in the mortgage and housing market of Turkey. For the purpose of analysis, 16 different set of attributes and their levels were constructed using the Marketing Engineering of the Excel software.

The conjoint analysis showed that the most preferred product profile, from the prospective of the preference of the consumer was the P7 profile according to the ratings of the respondents. The product profile P7 is as under:

Card No 7

Attribute/Factor	Most preferred level
Type of Mortgage	Fixed rate mortgage

Repayment Structure	Increasing payment
Length of Mortgage	More than 10 years
Approval speed	Average
Bank Reputation	Very Good
Easiness of process	Easy

The consumers in the mortgage market preferred fixed rate of mortgage with increasing structure of repayment of installments with more than 10 years of the mortgage payment time. The consumers preferred to take mortgage from a bank that is having a very good reputation in the market and the process of taking and returning the mortgage amount is easy and convenient for the consumer.

Most preferred level of repayment structure is increasing payment schedule that expresses that people wants to starts repaying of installments with smaller amounts and end up with bigger amounts according to his / her comfort and fluctuation in monthly income with fixed interest rate schedule and long term more than 10 years mortgage product so the combination of both cost oriented and service oriented level will be able to capture best market share.

Product 7 has the maximum market share averaged 10 % in the presence of optimal products profile that shows that the combination of P7 has most potential and most preferred able levels. While P 9 and P13 have maximum 11% share in existing market profile that does not have optimal product profile.

The most unlikely product profile or the product profile that none of the consumers in the mortgage market would like to opt for was the P4 card that was formed with the help of marketing engineering program of the Excel software. The product profile P4 is as under:

Less Preferred Combination
Card No. O4

Type of Mortgage	Adjustable rate mortgage
Repayment Structure	Increasing Payments
Length of Mortgage	More than 10 years
Approval speed	Slow
Bank Reputation	Good
Easiness of process	Hard

The consumer would not want to take the mortgage option where the type of mortgage is the adjustable rate with increasing repayment structure and the length of the mortgage more than 10 years. Also the consumers did not want to take mortgage from a bank that has slow speed of approval even when the bank has good reputation and hard mode of the process.

It shows that the service oriented factors like speed of approval and easiness of process also affects the choice of a mortgage loan and it can give back the value and significance of cost oriented factor like type of mortgage which identify the interest rate mood and structure of monthly installments payment even if the lender has good reputation in the mortgage finance market of Turkey.

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Mathematics- Statics-Accouting-English-Economics

30 Jun 2002–30Jun2005 İntermediate

Karachi Board of Education, Karachi (Pakistan)

30 Jun 1998–30Jun2000 Matriculation

Karachi Board, Karachi (Pakistan)

10 Jan 2005–10Jan2008 Diploma of Associate Engineer in Textile Dying and printing.(three years)

Govt. Monotechnic Institute Karachi,Pakistan, Karachi (Pakistan)
General,
English, mathematics, chemistry,physics,textile chemistry, coloration, textile printing,color science,quality assurance,managment, marketing, human resource management,

PERSONAL SKILLS

Mothertongue(s) Urdu

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken	Spoken	
	ESL				
English	B2	B2	B2	B2	B2
Turkish	A2	A1	A2	A2	A1
	Istanbul Aydin University				

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user Common European Framework of Reference for Languages

Communication skills

Good interpersonal & social skills and having creative mind.
Leadership qualities and having ability of handling peoples and work with them. Have voluntary worked in university marketing admission campaigns etc.

Organisational /managerialskills

Abilitytoconceive,develop&executepromotionalcampaigns
Knows Good decision making and Forecasting tactics.
Good command on Identifying the organizational employees related problems and provide the suitable solutions of them.

Job-related skills Face organization challenges and resolving them in sufficient manner Understanding customer needs and recommending suitable product stomaching sales.

Digital competence Ms-Office2003-2008-2
Internet Experties etc